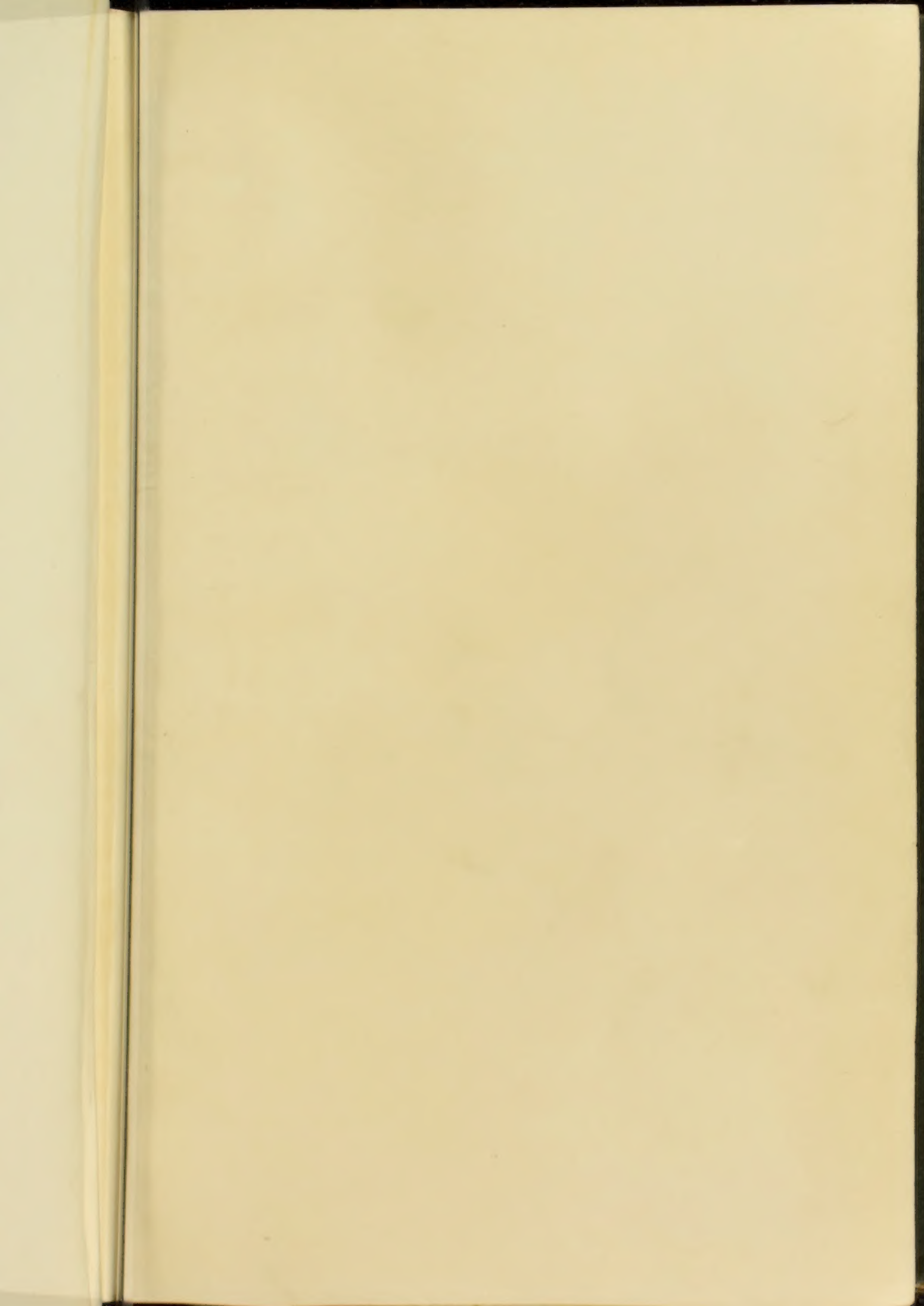


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BRITISH BIRDS

WITH WHICH WAS INCORPORATED IN JANUARY, 1917, "THE ZOOLOGIST."

AN ILLUSTRATED MAGAZINE DEVOTED
CHIEFLY TO THE BIRDS ON THE BRITISH LIST

EDITED BY
H. F. WITHERBY M.B.E. F.Z.S. M.B.O.U. H.F.A.O.U.

ASSISTED BY
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AND
NORMAN F. TICEHURST O.B.E. M.A. F.R.C.S. M.B.O.U.

Volume XXIX

JUNE 1935 — MAY 1936



H. F. & G. WITHERBY Ltd.
326 HIGH HOLBORN LONDON

LIST OF ILLUSTRATIONS.

	<i>page</i>
NESTING OF THE HAWFINCH	
Hawfinch feeding young. (<i>Photographed by G. Bird</i>).	
Plate 1	<i>Frontispiece</i>
Hawfinch: Adult opening bill on approach of its mate. (<i>Photographed by G. Bird</i>). Plate 2	<i>facing 2</i>
TIMES OF FEEDING.	
Chart: Some typical feeding times of Tits	46
PART OF PIED WAGTAIL ROOST ON A LEICESTER POST OFFICE ROOF. (<i>Photographed by the "Leicester Mercury"</i>)	
	57
A PAIR OF COMMON PARTRIDGES ON THE NEST. (<i>Photographed by Rev. Percival F. Bywater</i>). Plate 3	
	<i>facing 62</i>
FEMALE BLACK WHEATEAR, SIERRA DE RONDA, S. SPAIN, MAY, 1935. (<i>Photographed by John Armitage</i>)	
	Plate 4 <i>facing 94</i>
THE INDEX OF HERON POPULATION, 1935.	
Chart showing Changes in Heron Breeding Population by Regions, 1928-1935	99
FEMALE SARDINIAN WARBLER AT NEST, CAP SPARTEL, MOROCCO, MAY 14TH, 1935. (<i>Photographed by John Armitage</i>)	
	109
NESTING-BOX WITH FRONT REMOVED, SHOWING BLUE TITS' NEST INSIDE WITH ROBINS' NEST ON ROOF ...	
	114
GANNET: MAP TO SHOW RECOVERY POSITIONS OF BIRDS, RINGED AS NESTLINGS IN GREAT BRITAIN	
	139
THE PATAGIAL FAN OF THREE BRITISH BREEDING PETRELS.	
<i>Manx Shearwater</i> . Plate 5:	
A. Side of wing tilted to show how the spreader and ossicle do not lie in the same plane as the humerus and radius. 1—Ossicle; 2—Spreader; 3—Cartilage joining Ossicle and Spreader; 4—Process of humerus	201

THE PATAGIAL FAN OF THREE BRITISH BREEDING PETRELS.	page
<i>Manx Shearwater</i> . Plate 5 : (<i>continued</i>)	
B. Side of wing. The ossicle lies on the humeral process, but not on the end face of the process. 1—Ossicle ; 2—Spreader ; 3—Cartilage.	
C. Left wing extended. 1—Ossicle ; 2—Spreader ; 3—Cartilage ; 4—Tendon spreader to radius ; 5—Strongest tendon spreader to radius ; 6— Tendon humeral head to radius and throws a slip to spreader ; 7—Tendon spreader to humerus	201
<i>Left Wing of Fulmar Chick</i> . Plate 6.	
1—Process of humerus ; 2—Tendon of brevis showing the brevis tendon arrangement. Process of humerus present but no ossicle or spreader bone	201
<i>Right Wing of Storm-Petrel</i> . Plate 6.	
1—Extensor muscle, Humeroproc carpi ; 2— Patagium ; 3—Humerus ; 4—Radius ; 5—Ulna ; 6—Process of humerus	201
STUDY OF SEA-BIRD MOVEMENTS.	
Figure 1. Sketch Map of West Cornwall	205
Figure 2. Chart : Manx Shearwater, showing General movement : Spring, 1933 ; April 8th— April 20th. Figure 3. Spring, 1935 ; April 6th— April 27th. Figure 4. Summer, 1934	207
SKOKHOLM BIRD OBSERVATORY.	
Entrance of new Migration Trap on Skokholm, showing pools of water from natural spring. (<i>Photographed by H. Morrey Salmon</i>)	226
NORTH AMERICAN GANNETRIES.	
Existing colonies are underlined with number of breeding pairs at each	268
EUROPEAN GANNETRIES.	
Existing colonies are underlined with number of breeding pairs in each	269
BIRDS SEEN IN THE NORTH ATLANTIC.	
Census graphs of Leach's Petrel, Great Shearwater and Fulmar	368
Maps showing occurrences of Sooty Shearwater ...	372
BROODING CROSSBILL, NORFOLK, 1935.	
(<i>Photographed by G. K. Yeates</i>)	285

JUN 1935
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BRITISH BIRDS

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DEVOTED CHIEFLY TO THE BIRDS
ON THE BRITISH LIST

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No. 1.



MONTHLY 1s 9d. YEARLY 20s.
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Hawfinch feeding young.
(*Photographed by G. Bird.*)

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CONTENTS OF VOL. XXIX., NUMBER 1, JUNE 1, 1935.

	PAGE
esting of the Hawfinch. By G. R. Bird. Plates 1 and 2 ...	2
Report on the Swallow Enquiry, 1934. By A. W. Boyd.	
<i>Publication of the British Trust for Ornithology</i> ...	3
Notes :—	
Some Results of Trapping and Ringing (G. Marples) ...	22
Bird Concentration in a small area in Lancashire (Eric Hardy)	25
Number of Young reared by Rook (C. Wontner-Smith) ...	26
Continental Jays in Kent (Dr. J. M. Harrison) ...	27
Courting Display of Male Firecrest, in Surrey, in April (Dr. P. Manson-Bahr) ...	27
Black Redstart in Essex (K. R. Ashby) ...	28
Food of Kestrel (B. T. Parsons) ...	28
The Great Crested Grebe at Elstree Reservoir (B. Lloyd) ...	28
Red-throated Diver in Middlesex (F. R. Finch) ...	29
Kentish Plover in Berkshire (C. W. G. Paulson and G. des Forges) ...	30
Spotted Redshank in Hampshire (K. B. Rooke and K. D. Smith) ...	30
Great Skua off Tenerife (D. Cross) ...	30
Former Abundance of Black Grouse in Sussex (N. F. Ticehurst)	31
Short Notes :—	
Eastern Sky-Larks in Outer Hebrides. Great Grey Shrike in Suffolk. Waxwings in Hampshire. Black Terns in Hampshire and Breconshire. Eastern Little Bustard in Aberdeenshire ...	32
Reviews :—	
<i>A History of the Birds of Middlesex.</i> By W. E. Glegg ...	32
<i>British Trust for Ornithology, First Report, Spring, 1935</i> ...	33
<i>The Little Owl: an Examination of its Food Habits.</i> By A. Hibbert Ware ...	34
<i>A Revised List of the Birds of Dorset.</i> By Rev. F. L. Blathwayt	35
<i>Birds of a Lancashire Cotton Town. Being Notes on the Avi- fauna of Heywood.</i> By Irvine Whittaker, M.B.O.U....	35
Letters :—	
Mythology of Woodpecker (E. A. Armstrong) ...	35
Weight of Pink-footed Geese (H. L. Popham) ...	36



NESTING OF THE HAWFINCH.

BY

G. R. BIRD.

(Plates 1 and 2.)

ALTHOUGH Hawfinches (*Coccothraustes c. coccothraustes*) are fairly well known in many parts of Suffolk during the autumn and winter and even so late as April and early May, they nevertheless seem to vanish utterly during the nesting-period.

In many cases they are severely dealt with by the gardener owing to their depredations amongst the peas, and the survivors, instead of remaining in gardens and hedgerows, appear to scatter in pairs, selecting tops of trees not only for their nesting-sites but also largely for food.

The nest observed and shown in the accompanying photographs was situated well up on the outside twigs of a forest oak in east Suffolk. The nest was composed of dried bents, heather and hair, and both birds took part in building it and in subsequent brooding and feeding.

Three eggs formed the clutch and three chicks were reared, the period of incubation being fourteen days.

The birds were extremely timid and shy. They would alight on an overhanging branch some time before dropping down to the nest to feed, and their visits were always heralded by a "chick chick". Their extreme shyness and the position of the nest in the tree-top made observation difficult, while to get good action photographs was wellnigh impossible, and I felt I was fortunate in getting some of interest.

The chicks when hatched have white down and yellowish-brown skin, and the huge beak is already in evidence. Like other finches the adult birds feed by regurgitation and both are often at the nest together. If one bird is already at the nest it greets the other's arrival with open bill and fluttering wings. In one of the photographs reproduced the wide-open bill is shown, but in another taken of this ceremony the movements were unfortunately too rapid, and the result is too blurred to show the action of the bird. The young grow quickly and soon develop their distinct wing-feathers. After they leave the nest they may be seen feeding in small numbers amongst trees in the woodlands, and at this time the birds (both old and young) are not so shy.



HAWFINCH: Adult opening bill on approach of its mate.
(*Photographed by G. Bird.*)

PUBLICATION OF THE
BRITISH TRUST FOR ORNITHOLOGY.

REPORT ON THE SWALLOW ENQUIRY, 1934.

BY
A. W. BOYD.

THE chief object of this enquiry has been to establish the average size of broods of the Swallow (*Hirundo r. rustica*) in each summer month and in different localities, comparing altitude of these localities, type of agriculture and whether rural or urban.

Supplementary questions also were asked which could be conveniently investigated at the same time ; the dates of first and last eggs and broods : proportion of nests used more than once in a season ; the relation of Swallows with domestic animals, with destructive creatures and with other species of birds that usurp their nests ; their association with House-Martins (*Delichon u. urbica*) ; the prevalence of parasites, their species and their effect on their hosts ; size of clutch and subsequent size of brood ; and local weather notes.

The second main object of the enquiry was to take a census of the pairs of Swallows nesting in widely separated localities to see if any principle governing their distribution could be discovered.

Twenty-two helpers took part in this enquiry in 1934 ; of these twelve took a census (several making a census only), with significant results.

The following are the localities from which reports were received ;

In those marked C a census was taken.

1. Baldernock Parish, Stirling (J. Bartholomew), 250/300 feet, limestone, rural, dairy farming.
2. Isle of Man (F. A. Craine), slightly above sea-level, agricultural, crops by rotation.
3. Dalston, 7 miles S.W. of Carlisle, Cumberland (R. H. Brown), 300 feet, clay subsoil, rural, grazing land, stock-breeding ; very mild and rather wet climate.
4. 3 miles radius of Ullswater, Cumberland/Westmorland (Dr. H. J. Moon), 400 feet (average elevation), chiefly igneous rock with varying depths of glacial drift ; rural.
5. Robin Hoods Bay, N. Riding, Yorkshire (H. O. Rodgers), inlet on N.E. coast hills rising to 700 and 800 feet. Observed nests, 2/300 feet. Jurassic lias ; rural ; mixed farming—many small farms.

6. Near Huddersfield, W. Riding, Yorkshire (J. C. S. Ellis), 300 to 800 feet. Lower coal measures, urban; almost entirely pasture (2/300 acres oak wood). C.
7. Heywood, Lancashire (I. Whittaker), 300 to 1,450 feet; industrial, urban and rural (with 5 square miles moorland); dairy-farming. C.
8. Myddleton and Houghton Green, near Warrington, Lancashire (W. Ritson), 25 to 50 feet; rural; boulder clay; mainly arable (potatoes, cabbages, corn) and some dairy farming.
9. Area north of Stalybridge, S.E. Lancashire/N.E. Cheshire border (H. Livesey), 445 to 925 feet; industrial, urban and rural; poor grass land, cattle only. C.
10. $4\frac{1}{2}$ miles radius from Alderley Edge, E. Cheshire (E. Cohen), 200 to 300 feet; rural and suburban; red marl and red sandstone (Keuper); mainly cattle pasture.
11. Antrobus and Sevenoaks, N.W. Cheshire (A. W. Boyd), 150 to 284 feet; rural; Keuper marl; mixed farms (potatoes, wheat, etc.) and cattle—many small farms. The area includes 300 acres of rough grazing (reclaimed moss-land) without farm-buildings. C.
12. S.E. corner of Anglesey (R. R. M. Jones), 60 feet; bordered by the sea; limestone; pastures with a small area of crops. C.
13. Parishes of Laugharne, Llandawke, Llansadwrnen, Carmarthenshire (J. F. Thomas), 10 to 480 feet (most nests below 100 feet). Chiefly old red sandstone with ten farms on "blown sand"; rural; dairy and cattle raising.
14. Skokholm, Pembroke (R. M. Lockley), 50 to 150 feet. Old red sandstone. An island of rough grazing, heather and bracken. C.
15. Parishes of Colwall, Mathon, Bosbury, Coddington, E. Hereford (J. D. Wood), about 250 to 1,114 feet. Mainly between 300 and 450 feet. Old red sandstone with a strip of Silurian rocks on the east, limestone and shale in south; rural, with scattered villages; orchards, hop-fields and pastures. C.
16. Bruton, Somerset (P. A. D. Hollom), 300 to 450 feet; clay; rural; almost entirely grassland. C.
17. Staunton, Nottingham (Miss F. K. Staunton).
18. Salthouse, Kelling, and Weybourne, north Norfolk coast (R. M. Garnett), sea-level to 260 feet; sandy overlying clay; rural; arable and heath-land and coastal marshes; main crops barley and sugar-beet. (Nesting birds almost all concentrated in the three villages included in the area of the census—4,160 acres). C.
19. Hemsby, E. Norfolk coast (Miss J. M. Ferrier), 100 feet; subsoil clay; rural; cereal crops. (Area of census includes 27 acres of foreshore). C.
20. 5-7 miles E.N.E. of Ipswich, Suffolk (A. Mayall), 100 to 150 feet; sandy; rural; arable and pasture; much heath-land and woodland. C.

21. Near Seaford, Sussex (J. F. Thomas), up to 700 feet ; chalk ; rural with small semi-suburban area ; rough pastures with better grazing in valley ; corn crops 2 per cent. to 3 per cent. The 12 square miles area of the census comprised 8 square miles of typical downland ; the remaining 4 square miles contain the narrow Cuckmere valley shut in by steep-sided downs. C.
22. Tenterden, Kent (H. F. Ticehurst), 250 feet ; Wealden clay ; rural ; mixed farming ; grassland and small woods.

It will be seen that though the north has been fairly well represented, observers in the midlands have been few, but the country has been covered well enough to provide a very fair sample of the whole.

AVERAGE SIZE OF SWALLOW BROODS
(previously published).

A number of figures giving the average size of Swallow broods have already been published and may well be briefly recapitulated here. Mr. H. W. Robinson's figures for Lancashire and Westmorland seem to have been the first records of this kind :—

AVERAGE SIZE OF BROODS.

Perthshire (Lord Scone, B.B. XXI., 157).

<i>Year.</i>	<i>Nests.</i>	<i>Average Brood.</i>
1927	15	4

Cumberland and Westmorland (R. H. Brown, B.B. XXI., 178).

<i>Year.</i>	<i>Nests.</i>	<i>Average Brood.</i>
1925	16	4.2
1926	20	4.0
1927	25	4.0

Lancashire and Westmorland (H. W. Robinson, B.B. XVI., 164).

<i>Year.</i>	<i>Nests.</i>	<i>Average Brood.</i>	<i>Year.</i>	<i>Nests.</i>	<i>Average Brood.</i>
1909	11	3.27	1917	70	4.3
1910	45	3.89	1918	51	4.19
1911	60	4.4	1919	59	4.11
1912	20	3.95	1920	14	4.5
1913	22	3.27	1921	16	3.81
1915	38	4.65	1922	22	4.13
1916	42	4.0			

Yorkshire (J. C. S. Ellis, *B.B.* XXVI., 256-7).

Year.	Nests.	Average Brood.
1932	{ 9—1st broods.	4.55 (average eggs 4.88).
	{ 8—2nd „	4.0 (average eggs 4.25).
1933	11 broods.	{ 4.1 (1st brood) <i>B.B.</i> XXVII. 202.
		{ 4.0 (2nd „)

Cheshire (A. W. Boyd, *B.B.* XXIV., 160, XXV., 226, XXVI., 255, XXVII., 232).

Year.	Nests.	Average Brood.	Year.	Nests.	Average Brood.
1927	50	3.98	1931	106	3.98
1928	71	3.9	1932	103	4.01
1929	94	4.06	1933	107	4.31
1930	121	4.28	[1934	104	4.03]

The earlier broods in each year invariably had the larger average.

AVERAGE SIZE OF BROODS.

Carmarthenshire (J. F. Thomas, *B.B.* XXVII., 201/2).

Year.	Nests.	Average Brood (for August).	Year.	Nests.	Average Brood. (for August).
1923	32	3.94	1929	45	3.96
1924	24	3.96	1930	36	4.06
1925	40	3.90	1931	46	4.11
1926	45	4.04	1932	50	3.96
1927	41	3.90	10 years' average 1923-1932		3.92
1928	32	3.34	1933	51	3.71
			[1934	89	3.86]

Somerset (P. A. D. Hollom).

Year.	Nests.	Average Brood.
1929	22	4.64 (June)—for June and July 38 nests,
1931	16	4.63 („) average 4.48 (<i>B.B.</i> XXIII, 249)
[1934	19	4.37 („)]

Kent (H. F. Ticehurst, *B.B.* XXVII., 232).

Year.	Nests.	Average Brood.
1933	{ 18—1st broods	4.27
	{ 13—2nd „	3.15
[1934	27	3.63]

Sussex (H. J. Emmet, *B.B.*, XXVIII., 146).

1934. In 7 nests 31 eggs were laid, 26 hatched, 20 young fledged.

AVERAGE SIZE OF BROODS
(Present Enquiry).

Locality.	Total broods ex- amined	Month	Number Containing						Total Young	Aver- age for Year	Nearest Recording Station	WEATHER		Total Inches Rain	Sun hours daily mean
			1	2	3	4	5	6				Mean	Temp. Min.		
1. Baldenock, Stirling.	9 5 5 3	June July Aug. Sept.	— — — —	— — 1 2	1 — — —	— 2 2 1	5 3 2 —	3 — — —	46 23 20 8	3.11 4.60 4.00 2.66	Kemrow (Circ. 7 miles S.W.).	57.1 65.9 70.4 63.9	43.0 48.4 52.3 50.0	2.42 1.89 2.34 3.86	4.85 5.87 7.44 3.35
2. Isle of Man.	4 6 4	June July Aug.	2 — —	1 — —	2 1 —	2 3 2	— — 1	— — —	10 20 16	2.5 3.33 4.00	Douglas.	55.4 62.7 68.0 62.4	41.5 50.8 55.8 52.6	3.36 2.24 0.46 3.43	5.79 8.04 8.22 5.96
3. Dalston, Cumberland.	9 9 9	June July Aug.	— — —	— — —	— 2 —	5 5 5	4 2 4	— — —	40 36 40	4.44 4.00 4.44					
4. 3 miles' radius of Ullswater, Cumberland.	32 20 19 8 1	June July Aug. Sept. Oct.	1 — — — —	4 — — 1 —	10 7 6 5 1	— — 7 2 —	14 12 6 — —	3 1 — — —	127 87 76 25 3	5.96 4.35 4.00 3.12 3.00	Ambleside, (8/9 miles S.).	55.4 68.2 73.3 64.9 64.4	41.4 48.1 51.3 49.9 48.4	4.16 1.77 1.53 5.74 10.26	4.12 6.53 6.72 3.73 4.03
5. Robin Hood's Bay, N.E. Yorkshire.	4	June	—	2	1	1	—	—	11	2.20					
6. Nr. Huddersfield, W. Yorkshire.	5 5 7 2	June July Aug. Sept.	— — — —	1 — — —	1 — 1 1	3 2 4 1	— 3 2 1	— — — —	17 23 29 8	3.40 4.60 4.14 4.00	Huddersfield.	60.3 67.1 74.6 67.6 67.0	43.0 48.4 54.0 50.3 48.8	1.41 1.07 1.58 1.00 1.37	4.44 5.17 7.28 4.72 4.76
7. Heywood, Lancashire.	21	June	—	—	4	8	9	—	89	1.23	Bolton (9 miles W.).	58.2 67.4 73.6 66.1 65.3	44.7 50.0 55.2 51.4 49.3	3.41 2.03 2.23 4.81 3.49	4.48 6.21 7.55 3.91 3.67

AVERAGE SIZE OF BROODS (*Present Enquiry*).

Locality.	Total broods ex- amined	Month	Number Containing						Total Young	Aver- age Year	Total No. of Broods	Aver- age for Year	Nearest Recording Station	WEATHER		Total Inches Rain	Sun hours daily mean
			1	2	3	4	5	6						Mean Max.	Temp. Min.		
8. Warrington, Lancashire.	15 4 8 Nil	June July Aug. Sept.	—	1	—	4	10	—	68 17 32 —	4.53 4.25 4.00 —	27	4.3	Warrington.	— — — —	— — — —	2.10 1.51 1.72 2.50 3.26	— — — — —
10. Alderley Edge, E. Cheshire.	11 10 13 1	June July Aug. Sept.	—	1	1	4	3	2	48 37 52 4	4.36 3.70 4.00 4.00	35	4.0	Macclesfield. (5 miles S.E.).	58.5 67.0 73.7 66.2 65.4	42.4 48.9 54.2 50.1 48.8	2.17 2.00 4.04 2.77 2.71	— — — — —
11. Antrobus, N.W. Cheshire.	34 24 41 5	June July Aug. Sept.	1	2	3	10	15	3	151 88 157 16	4.43 3.66 3.82 3.20	104	4.03	Barnton, nr. Antrobus.	60.7 69.0 78.8 69.6 68.2	42.5 49.3 53.5 49.8 47.4	1.46 1.71 1.06 2.82 1.81	— — — — —
12. S.E. Anglesey.	29 — 16 6	June July Aug. Sept.	—	2	1	9	16	1	129 68 23	4.44 — 4.25 3.83	51	4.3	S.E. Anglesey.	— — — —	— — — —	4.92 2.40 0.67 3.63 3.93	— — — — —
13. Laugharne, Car- marthenshire.	89	Aug.	2	7	16	42	20	2	344	3.86	89	3.86	Swansea (27 miles S.E.).	59.7 68.8 74.0 65.9 64.6	47.5 53.0 59.4 54.5 54.1	2.06 1.55 1.00 3.37 4.05	7.00 8.19 8.56 6.22 4.76
15. Colwall, etc., Herefordshire.	3 10 4 1	June July Aug. Sept.	—	—	1	6	3	1	14 42 17 3	4.00 4.20 4.25 3.00	18	4.2	Herefordshire.	66.4 70.27 77.74	44.2 50.9 55.1	1.11 1.15 0.47	— — — —

AVERAGE SIZE OF BROODS (*Present Enquiry*).

Locality.	Total broods ex- amined	Month	Number Containing						Total Young	Total Aver- age of Broods	Nearest Recording Station	Weather		Total Inches Rain	Sun hours daily mean
			1	2	3	4	5	6				Mean Max.	Temp. Min.		
16, Bruton, Somerset.	19	June	—	1	2	6	9	1	83	4.36	Bath, (20 miles N.).	63.6 70.6 77.1 68.9 67.8	45.9 53.0 56.7 52.8 51.1	1.08 1.47 1.76 3.05 2.31	7.37 7.09 9.18 6.35 5.25
18, Salthouse, etc., Norfolk.	8 23 19 1	June July Aug. Sept.	— 1 1 —	— 2 2 —	4 3 5 —	3 11 9 1	1 6 2 —	— — — —	29 88 66 4	3.62 3.82 3.47 4.00	Cromer, (6.9 miles E.).	59.4 64.6 71.3 68.7 68.9	41.9 50.7 55.6 54.7 52.0	2.64 1.03 0.78 1.66 1.65	6.43 6.09 8.29 6.01 6.71
19, Hensby, Norfolk.	16 11 3	June Jul./Aug. Aug./Sept.	— — —	— — —	2 7 1	8 4 2	6 — —	— — —	68 37 11	4.25 3.36 3.66	Yarmouth.	57.6 61.7 68.3 68.2 67.1	45.5 52.5 57.0 55.1 53.3	1.17 1.29 3.03 1.78 1.51	6.68 6.76 8.85 6.83 6.84
20, E. Suffolk.	9 10 11 1	June July Aug. Sept.	— — — —	1 — 1 1	2 3 — —	3 2 6 —	3 5 4 —	— — — —	35 42 46 2	3.88 4.20 4.17 2.00	Felixstowe, (6 miles S.).	59.1 64.7 70.0 69.0 66.9	45.5 50.8 55.3 55.3 54.0	2.45 0.74 1.83 1.11 1.64	7.43 7.64 8.99 6.53 6.86
21, Scaford, Sussex.	3 6	June July	— —	— —	1 —	— 5	2 1	— —	13 25	4.33 4.16	Scaford.	— — —	— — —	0.41 1.57 0.33	— — —
22, Tenterden, Kent.	11 7 6 3	June July Aug. Sept.	2 1 — —	1 2 — —	1 1 — 1	2 1 6 2	4 2 — —	1 — — —	41 22 24 11	3.72 3.14 4.00 3.66	Lymington, (15 miles E.).	59.5 66.3 72.3 68.3 67.6	44.0 51.1 54.5 52.8 52.2	1.05 1.44 0.66 2.42 1.18	7.76 7.83 9.66 6.74 6.75

AVERAGE SIZE OF BROODS (*Present Enquiry*).

664 broods in all were examined and of these (taking all months together) :—

14 or 2.1 per cent. contained one young only ; 43 or 6.47 per cent. contained two ; 115 or 17.3 per cent. contained three ; 261 or 39.3 per cent. contained four ; 210 or 31.6 per cent. contained five ; 21 or 3.16 per cent. contained six.

In all 2,665 young were ringed or counted giving an average of 4.01 for all broods recorded.

In those cases where local weather reports were not supplied by the observer, reports for 1934 kindly supplied by Mr. R. G. K. Lempfert of the Meteorological Office for the nearest recording station have been added to the figures above, in an attempt to show a connexion between temperature, rain and sunshine and the size of broods, but it must be remembered that the comparison of the average of a small number of broods with that of a much larger number may lead to conclusions that are not properly founded.

The first brood, or at least the broods in June and July, are almost always the largest, but there is one noteworthy case—Ullswater, Cumberland—where the June brood was definitely smaller than those in July and August (the July broods will, of course, have been first broods for the most part), whereas from a Cumberland district outside and clear of the mountains a smaller number of broods gives a different result.

The highest average of June broods is found in Stirling, the most northerly of the localities in which records were taken, and this suggests an association between longer daylight and larger broods, though the actual sunshine records are no higher than, or not so high as, many of those in localities further south. On the whole it would seem that the higher sunshine figures of E. and S. actually go with a rather smaller brood ; Norfolk and Kent figures, for example, are smaller than those from less sunny Lancashire.

The amount of rainfall cannot be shown to have any appreciable effect on the size of broods.

The number of September broods is too small to justify any conclusion being drawn from them, though such figures as we have show that the most northerly locality gives the lowest average, just as it has the shortest hours of daylight.

Data from other Scottish localities in 1935 will be most welcome.

FIRST AND LAST EGGS AND BROODS.

The first egg was found on May 10th at Seaford, Sussex, where the next seven nests had their first eggs between May 11th and May 30th. The first eggs recorded in other localities were on May 15th N.W. Cheshire, May 16th Huddersfield, Yorkshire, May 18th Hemsby, Norfolk, May 28th Anglesey, May 29th Leicester, May 29th Ullswater, May 30th June 1st Harrington, Lancashire, June 4th Isle of Man, June 25th Stockholm, Pembroke.

Two early broods were hatched on June 1st (Alderley, Cheshire) and June 2nd (Kelling, Norfolk), from which we may conclude that the first eggs were laid on or about May 11th and May 12th respectively. The date on which Swallows began to lay does not seem to have been influenced by latitude to any extent, nor by altitude, as is reported from Huddersfield, where at 543 feet the earliest eggs are annually laid, though the area examined extends from 300 feet to 700 feet.

Last broods were observed or ringed in the nest:—September 4th (Stirling), September 10th Huddersfield, September 11th Kelling and Hemsby, Norfolk, September 14th N.W. Cheshire, September 16th Kent, September 21st (new) Anglesey, and one very late brood is recorded from Ullswater, where the last egg was laid on about September 30th and the young left the nest on October 29th.

PROPORTION OF NESTS USED MORE THAN ONCE IN A SEASON.

The proportion of nests used more than once differs in the most surprising way in each locality: thus in Stirling (22 broods) one nest, and in Suffolk (31 broods) no nest was used twice, whereas near Carlisle thirteen out of fourteen pairs reared the same nest twice and the fourteenth pair reared only one brood.

(Other figures were as follows:—

Huddersfield 26.6 per cent.—(4 nests in 15) used twice.
Harrington, Lancs.—2 nests used twice (29 broods).
Alderley, Cheshire—3 nests used twice (35 broods).
N.W. Cheshire—40 per cent. nests used twice (104 broods).
Anglesey—3.95 per cent. nests used twice (51 broods).
Hemsby, Norfolk—1 nest in 16 nests used twice.
Kelling, Norfolk—5 per cent. nests used twice (51 broods).
Enterden, Kent—8 nests used twice, and 3 used three times (27 broods).

It is noticed that on their return Swallows generally re-use and use an old nest and the making of a second nest or

use of a second old nest seems to be quite arbitrary, and to follow no principle that can be understood.

SIZE OF CLUTCH AND SUBSEQUENT SIZE OF BROOD.

The usual clutch is five eggs, six eggs, though not infrequent, are far less common. Seven eggs were found at Bangor, North Wales (J. S. Barrington) ; from Kent, H. F. T. reports that of those nests he examined one or two held clutches of six eggs and one of eight eggs ; in N.W. Cheshire there was one clutch of nine eggs (possibly the laying of two hens) from which only four young hatched, and three survived.

Carlisle—very few infertile or addled eggs and small mortality among young are reported.

Huddersfield—19 nests averaged 4.21 eggs, 4.05 young.

Alderley, Cheshire—22 nests averaged 4.63 eggs, 3.9 young.

N.W. Cheshire—24 nests averaged 4.54 eggs, 3.75 young.

Carmarthen—11 nests averaged 4.27 eggs, 3.6 young.

Notts—12 nests averaged 4.41 eggs, 4.16 young.

N. Norfolk—25 nests averaged 4.52 eggs, 3.56 young.

Seaford, Sussex—5 nests averaged 4.4 eggs, 3.4 young.

Anglesey—2.27 per cent. eggs were found to be addled and 2.32 per cent. young dead.

RELATION TO DOMESTIC ANIMALS.

It has been found that the nesting sites of the great majority of Swallows are associated with domestic animals, of which cows are first favourites ; pigs are very attractive and horses also, though recent reductions in the number of stables occupied by horses have made them of less importance to the bird ; hen-houses are often occupied, but the number of pairs nesting in dwelling-houses is comparatively small. The figures from Norfolk and Suffolk alone fail to show a predominance of this association.

This question, as it was originally framed, did not make proper allowance for those birds that nested in sheds or other buildings in close proximity to domestic animals, with which, of course, they were associated ; a second note was circulated suggesting that these should be included with those nesting in stable or byre actually occupied by animals.

The following figures show the extent of this association :—

Stirling :

In occupied byre or styre 10 ; in dwelling-house 1.

Carlisle :

All in cow-byres, cattle sheds or hen-houses (27 broods).

Ullswater :

In occupied buildings 54 (stable 2 ; cows 36 ; pigs 14 ; hens 2).

In unoccupied buildings and lean-to sheds 10.

Huddersfield :

In occupied buildings 13 (horse 2 ; pig 6 ; cow 1 ; dog 1 ; hens 3).
 In occasionally-used " bull-sheds " 3 | Not associated with
 In unoccupied buildings 3 | animals.

Heywood, Lancashire :

In farms with domestic animals 37.
 In unoccupied buildings 6.
 Under bridges 4.

Near Warrington, Lancashire :

In farms with animals or fowls 10.
 In unoccupied buildings 7.

Alderley, Cheshire :

Associated with domestic animals or fowls 16 ; no association 20,
 but except three sites all were within 50 yards or less of fowls.

N.W. Cheshire :

Associated with cattle, horses and pigs 77.
 In buildings occupied only by fowls 8.
 In dwelling-houses and sheds where no association with animals
 or hens 12.

Anglesey :

In buildings occupied by animals 28.
 In dwelling-houses 3.
 In unoccupied buildings 43.

Carmarthenshire :

Associated with animals 97.
 In buildings where animals and fowls always present 19.
 In buildings where animals present daily for short time 43.
 In buildings such as cartsheds, etc., 35.
 In places far from animals 5.

Kelling, etc., Norfolk :

In occupied buildings and hen-houses 29.
 In dwelling-houses and unoccupied buildings 37.

Hemsby, Norfolk :

In occupied buildings and hen-houses 15.
 In unoccupied buildings 46.

E. Suffolk :

Associated with animals and fowls 6.
 In unoccupied buildings with no such association 25.

E. Hereford :

Associated with animals 88 pairs.
 Not so associated 8 pairs.
 Of these 96 pairs 62 exact nesting-sites noted :—cowshed or
 pig-stye 26 (42 per cent.), in barns 19 (30 per cent.), in hop-kilns 9,
 outhouses 5, gateway 2, hen-house 1.

Somerset :

Associated with animals 50.
 Not so associated 14.
 Of these 64 nests 37 were in buildings actually occupied by
 animals, 2 in dwelling-houses and 25 in unoccupied buildings.

Sussex :

Associated with animals 23 { in permanently occupied sheds 7.
in temporarily occupied sheds 6.
in cartsheds, etc., 10.

Not associated 4.

Kent :

A district with cattle, pigs, horses, etc., and poultry; In stable 1.
In unoccupied buildings 28 ; none in dwelling-house.

Figures showing the numbers of livestock were very kindly obtained by Mr. J. F. Wynne from the records kept at the Ministry of Agriculture but a careful examination of these figures has failed to show any real connexion between the numbers of domestic animals and the density of the Swallow population. Rather it would appear that the frequency of suitable nesting-sites in out-buildings determines the number of nesting pairs ; thus in N.W. Cheshire, where small farms are the rule, and where groups of farm-buildings almost all house one or more pairs, the density is almost at its maximum, whereas in areas where farms of greater acreage are the rule, and where there are in consequence a smaller proportion of suitable buildings, the Swallow population also is smaller, though the number of cattle to the area may be equally large. Figures from Anglesey seem to emphasise the importance of a suitable site rather than the presence of animals as the decisive factor ; in this district large disused farms attached to houses proved attractive and housed the majority of breeding pairs. Nevertheless personal observation has shown that in a restricted area, such as one group of farm-buildings, the number of pairs varies from year to year with the number of animals : in one case in Cheshire the removal of pigs from a series of pig-cotes was followed at once by a great diminution in the number of pairs that nested there. In urban districts the Swallow population is always small though there are, of course, many possible sites in and around dwelling-houses ; it would appear therefore that the density of Swallows is greatest where the groups of farm-buildings are most frequent, and that Swallows find feeding conditions most to their liking in rural areas.

USURPATION OF SWALLOWS' NESTS BY OTHER BIRDS.

Swallows' nests do not appear to suffer from the attacks of other birds in the same way as those of the House-Martin, but several birds occasionally use Swallows' nests as foundations for their own. From Carlisle it is reported that Wrens (*Troglodytes t. troglodytes*) occasionally use old Swallows' nests, but have not been known to turn a Swallow out of an

occupied nest ; in N.W. Cheshire two Wrens' nests were built in old nests ; in Anglesey three Wrens' nests and in E. Hereford six Wrens' nests were reported.

In N.W. Cheshire a House-Sparrow (*Passer d. domesticus*) built in an old nest as has been done on several occasions previously ; in Anglesey two House-Sparrows ; and at Kelling, Norfolk, young Swallows were ejected from the nest by House-Sparrows.

Other birds that have built in Swallows' nests are :—
 Spotted Fly-catcher (*Muscicapa s. striata*) in E. Hereford ;
 Robin (*Erithacus r. melophilus*), in whose nest a Cuckoo (*Cuculus c. canorus*) was reared, in Kent, where a Robin's nest on a rafter was itself used by a Swallow after the young had flown and a Swallow's brood was reared in it.

INTERFERENCE BY DESTRUCTIVE ANIMALS AND BIRDS.

Rats and mice are responsible for most damage. Rats occasionally kill adults or young at Carlisle ; at Ullswater they destroyed four nests in 1934, at Warrington one nest, and one (probably rats) in N.W. Cheshire. Mice were responsible for the destruction of six at Ullswater ; at Skokholm they destroyed a second brood and in Kent eggs in one nest were found to be sucked—probably by mice. In the autumn a mouse (probably a long-tailed field-mouse) made a nest in a Swallow's nest built in a hen-shed in N.W. Cheshire.

Cats destroyed two nests at Ullswater and one in N.W. Cheshire. An Owl took one sitting bird at Ullswater.

A certain amount of human interference must be expected, though the Swallow benefits from superstition in Cheshire and Hereford* and is protected on that account ; in Anglesey it has been noticed that when Swallows nest in a cow-shed the irritant black flies are kept out and they are encouraged to nest for that reason.

RELATION TO HOUSE-MARTINS.

Martins and Swallows can hardly be said to compete for nesting-sites ; the great majority of Swallows build inside buildings, whereas Martins build under eaves or in the roofs of open hay-sheds. There is little evidence that there is any hostility and nests occur on the same farms.

Martins are far more patchy and concentrated in their distribution and appear to be more fickle ; their numbers fluctuate in a remarkable degree and those of the Swallow

* In a Derbyshire locality it is believed that cows will give bloody milk if the Swallows' eggs are taken.

are far more constant. Thus in an area at Bruton, Somerset, 104 pairs of Martins, in 1929, were reduced, in 1931, to 63, and in 1934 to 34.

Where Martins and Swallows occur together Martins are usually in the majority, as might be expected of a bird that nests in colonies. One instance gives possible evidence of antipathy: in two Dutch barns at Ullswater a pair of Swallows built on low beams beneath a colony of Martins and in each case the Swallows deserted.

In many districts the two species do not overlap to any extent; in 2,717 acres in N.W. Cheshire Martins occur in only six farms; in four of these Swallows also nest (nine pairs of Swallows and eleven of Martins), and in two farms Martins alone breed. In one or two cases both species occupy the same cart-shed and nest in close proximity.

In E. Hereford, in an area of twelve square miles, Martins and Swallows were both found nesting in eleven sites, but in each case the Martins occupied the dwelling-house and the Swallows the out-buildings, so that there was little competition; in these eleven sites fifty pairs of Martins nested and eighteen pairs of Swallows. In three villages of N. Norfolk 158 pairs of Martins and 54 of Swallows nest; there is no evidence of hostility and the nesting-sites are so different (Martins along the fronts and sides of the houses, Swallows in farm buildings and sheds) that there is no reason for them to clash.

PARASITES OF SWALLOWS AND ANIMALS FOUND IN THEIR NESTS.

In this section of the enquiry few of the observers took adequate part, but of the material sent for investigation Mr. H. Britten, of the Manchester Museum, has sent the following report:—

“A complete summary of the inhabitants of over twenty Swallows' nests, examined from various localities, from the beginning of July to the middle of September, 1934, and also including several dead birds taken from the nests, has proved of exceptional interest. The nests were from the following localities:—

Edgerton, Huddersfield, J. C. S. Ellis;

Laugharne, Carmarthen, J. F. Thomas;

Penmon, Anglesey, R. M. Jones;

A number of Cheshire localities by E. Cohen and A. W. Boyd.

In addition a single dipterous larva was sent from Kelling, Norfolk, by R. M. Garnett, having dropped from the corner of a young bird's mouth, where it had evidently been sucking the bird's blood. A similar larva was sent in by A. W. Boyd, which had dropped from a young bird. In both cases the young birds had been taken out of the nest for ringing.

PARASITES FOUND IN SWALLOWS' NESTS.

i) *Siphonaptera*.

Ceratophyllus gallinæ Schrank. This is the flea which one usually finds in such numbers in hen-houses, and also in the nests of many birds; it was present in two of the nests examined, and was breeding in them, as adults, larvæ and pupæ cases were found.

ii) *Diptera*.

Phormia sordida Zett.=*Protocalliphora cærulea* R.-D. of certain authors; one of the blue bottle flies.* The pupal cases of this fly were present in some nests in numbers, but in most cases the flies had emerged before the nests were taken. Two larvæ from widely-separated localities were sent in, having dropped from the young birds when taken from the nest to ring, also several of the young birds were found dead in the nests where these pupæ cases were present, this suggesting that the fly may be a means of reducing the numbers of the nestlings considerably; but in other nests where there were dead nestlings present there was no trace of pupal cases of the fly, but the dead mites were in countless thousands, so that it is quite possible that the constant drain on the young birds by the sucking of these mites may also result in the death of one or more of the young birds; it is to be hoped that in the coming nesting season this will be borne in mind and careful examination of the whole nest be made where dead birds are present, or perhaps it would be best to take the whole nest and pack it intact to the investigator. The larvæ of this fly have been recorded from the nests of many birds, but although some hundreds of nests of various birds have been investigated in the Manchester Museum during the past few years, I have found it only in Swallows' nests.

iii) *Acari*.

Dermanyssus gallinæ Redi.; Red Mite. This was present in practically every nest, in some they were swarming in countless numbers, and even the dead birds sent in from the nests were swarming with this mite. In two different nests where dead birds were present, these mites were in astonishing numbers, and there was nothing else in the nest to account for the death of the young birds.

(Dr. Moon reported that the young developed somewhat slowly when the infestation was very heavy.)

OTHER ANIMALS (NOT PARASITES) FOUND IN SWALLOWS' NESTS.

i) *Psocidæ*.

Troctes divinatorius Müll.

Lepinotus inquilinus Heyd. These two Psocids (book-lice) were present in several nests, probably feeding on the dead mites and other animal matter.

ii) *Orthoptera*.

Forficula auricularia L. Common earwig. A few examples in one nest.

iii) *Hemiptera*.

Lyctocoris campestris F. Only present in one nest, although of frequent occurrence in nests of other birds, where they often suck the pupæ of fleas; even the larger pupæ of moths are pierced and sucked.

A note on this fly has already been published in *British Birds*, Vol. XXVIII., p. 22, showing it to be widespread in England.

by these predatory bugs. Their principal food in these nests is evidently the red mites, and they can often be seen with a fairly large mite attached to the end of the proboscis by the lancets which have penetrated well inside the mite's body.

(iv) *Lepidoptera*.

Borkhausenia pseudopretella Staint.

Endrosis lactella Schiff.

Tinea pellionella L. The larvæ of these three moths were present in most nests, in one case all three were in the same nest, but in most cases two were always present. These larvæ were feeding on the feathers used as lining in the nests.

(v) *Coleoptera*.

Cartodere ruficollis Marsh. A few specimens of this tiny beetle in one nest; it is a regular inhabitant of barns and haylofts.

Amara apricaria Sturm. One of the ground beetles which it is difficult to account for in the nest; it was evidently only a straggler.

(vi) *Diptera*.

Hæmatopota pluvialis L. A male example of this common "cleg" was taken near a Swallow's nest and sent in with the query as to whether it had any connexion with the nest. The predatory larvæ of these flies breed in swampy places, and the males hover much in the same way as those of the common hover flies when waiting for their mates.

Fannia scalaris F. This fly is very similar to the small house fly and was taken close beside a Swallow's nest. Its flat bristly larva is found in dung and vegetable detritus of all kinds, but has never been seen in any nest.

(vii) *Pseudoscorpiones*.

Cheridium museorum Leach. In several nests this interesting little pseudoscorpion was present, and from the colour of the stomach contents it had evidently been preying on the red mites.

(viii) *Acari*.

Glyciphagus domesticus De G. Present in only one nest. This mite is usually abundant in most outbuildings, living on all kinds of detritus.

From the above remarks it will be readily seen how very necessary it is to have the whole of the lining of any nest taken, and in those where dead birds are found, the whole structure of the nest should be sent, as many of the blood-sucking dipterous larvæ burrow into the mud of the nest itself to pupate. The dead bodies of nestlings themselves should also be sent, so that they may be closely searched."

HARRY BRITTEN,
MANCHESTER MUSEUM.
6.2.1935.

CENSUS.

The twelve areas chosen for a census comprise a great diversity of terrain: an island, cattle-raising country and arable farming, coastal villages, a fruit-growing district, north-country industrial districts and moorland at altitudes ranging from sea-level to 1,450 feet.

These sample areas cover rather more than .01 per cent. of the land surface of England and Wales and the principal types of country seem to be fairly well represented.

The numbers before each locality correspond with the fuller descriptions earlier in the text.

Census Results. Swallow, 1934.

Locality.	Area in Acres.	Altitude.	Type.	Breeding Pairs.		Pairs of House- Martins.
				Number	Density per 1,000 Acres.	
Huddersfield.	2,400	300-800 ft. (2 prs. at 750 ft.) (3 prs. at 700 ft.)	Urban and upland pasture.	12	5	Nil.
Heywood, Lancashire.	8,320	300-1,450 ft. (2 prs. at 900 ft.) (6 prs. at 750 ft.)	Industrial and urban; 40% moorland.	47	6	19
Stalybridge, Lancashire-Cheshire border.	3,040	415-925 ft.	Industrial and urban with poor pastures.	10/15 (approx.)	3.3	Nil.
Antrobus and Sevenoaks, N.W. Cheshire.	2,717	150-284 ft.	Rural, Dairy and mixed farms. 300 acres reclaimed moss-land.	88/90	33	27
S.E. Anglesey.	1,515	0-60 ft.	Rural pasture.	62	40	1
Skokholm Island, Pembrokeshire.	240	0-150 ft.	Rough grazing and heather.	1	4	Nil
Colwall, Herefordshire.	7,680	250-1,114 ft.	Fruit and hop country with pasture and scattered villages.	96 Circ.	12	198
Bruton, Somerset.	2,560	300-450 ft.	Pasture and some woodland.	66	26	24
Salthouse, N. Norfolk.	4,160	0-260 ft.	Sea-coast villages, arable and much heathland.	51	12	152
Hemsby, Norfolk.	1,739	0-100 ft.	Rural, arable (corn).	61	35	7
Near Ipswich, E. Suffolk.	5,120	100-150 ft.	Arable and pasture, much heath and woodland.	18	4	3
Seaford, Sussex.	7,680	0-750 ft.	Coastal down- land and river valley.	23	3	22
	(5,120) (2,560)	(downland (valley	alone) alone)	(8) (15)	(2) (6)	

	Total	Total	Average Density
	Acreage.	pairs of SWALLOWS.	per 1,000 Acres.
12 Sample Areas	47,171	538—545	11—12

Census Results. House-Martins, 1934.

Locality.		Area in Acres.	Breeding Pairs.	
			Number.	Density per 1,000 Acres.
6. Huddersfield ... ..	...	2,400	Nil.	Nil.
7. Heywood, Lancashire	(16 prs. at 900 ft.) (3 prs. at 850 ft.)	8,320	19	2
9. Stalybridge ... ..	...	3,040	Nil.	Nil.
11. N.W. Cheshire ... ..	...	2,717	27	10
12. S.E. Anglesey ... ..	...	1,515	1	1
15. Colwall, Herefordshire	...	7,680	198	25
16. Bruton, Somerset ... ..	...	2,560	34	13
18. Salthouse, Norfolk...	...	4,160	158	38
21. Seaford, Sussex ... ..	...	7,680	22	3
(Valley only)		(2,560)	(22)	(8)
Total		Acreage.	Total	Average Density
9 Sample Areas		40,072	Pairs.	per 1,000 Acres.
			459	11

Census Results in Previous Years.

(For purpose of comparison 1934 figures are given in brackets).

Locality.		SWALLOWS.		HOUSE-MARTINS.		Year.
		Breeding Pairs.	Density per 1,000 acres.	Breeding Pairs.	Density per 1,000 acres.	
6. Huddersfield ...	2,400	13 11 (12)	5 5 (5)	— — —	— — —	1932 1933 (1934)
11. N.W. Cheshire...	2,717	{ 112 { approx. figures only (88-90)	42 (33)	— (27)	— (10)	1932 (1934)
16. Bruton, Somerset	2,560	52 60 (66)	20 23 (26)	104 63 (34)	40 24 (13)	1929 1931 (1934)

Census Results in Previous Years for Areas not included in 1934 Census.

Year.	Oxford Suburban and Urban. 7,680 acres.		Oxford Rural Land Adjoining. 28,160 acres.		Total. 35,840 acres.	
<hr/>						
HOUSE-MARTIN.						
	Pairs.	Density.	Pairs.	Density.	Pairs.	Density.
1931	325	42	432	15	757	21
1932	323	42	392	14	715	20
W. B. ALEXANDER— <i>Jnl. Ministry of Agriculture</i> XL. (No. 1, pp. 8-12).						
SWALLOW.						
Near Manchester.		Density per 1,000 acres.		HOUSE-MARTIN.		
	Pairs.			Pairs.	Density per 1,000 acres.	
1933	42 (approx.)	5		70	9	
S. CRAMP & J. H. WARD— <i>Jnl. of Animal Ecology</i> III. (No. 1).						

CENSUS SUMMARY.

(i) The Swallow.

From the figures so far available it seems clear that Swallows favour an area of a rural (rather than an urban) type, where suitable buildings for their nests prevail; that they nest in many districts in buildings occupied by domestic animals

is more easily accounted for by the abundance of suitable nesting-sites in these buildings than by the presence of the animals themselves, though the attraction of animals and the flies they bring must not be overlooked. Downland, heath-land and moorland support very few pairs, just as they include few buildings; the highest altitude at which breeding pairs in the areas under observation have been found is 900 feet. In industrial and urban districts their density is low; in three areas in Yorkshire, Lancashire and Cheshire about five pairs per 1,000 acres were found and a previous census near Manchester confirms this figure exactly. Their density is highest in rural districts; as in N.W. Cheshire where there are many small farms; in Anglesey where large disused farms are occupied; in E. Norfolk where they build in out-buildings of cottages and in farm buildings; and in Somerset where the size of farm-building groups causes them to be more concentrated in fewer farms than in other areas. The Swallow is very much more generally distributed than the House-Martin.

(i.) *The House-Martin.*

The House-Martin is far more a bird of the village or town than the Swallow and is wont to concentrate in colonies in restricted areas rather than breed in isolated pairs in many separate buildings, though isolated pairs often occur. Thus in an area of over 8,000 acres in Lancashire 19 pairs were concentrated in two groups; an area of about 4,000 acres in Norfolk contained 158 pairs of which 110 were in one small village. In Herefordshire they showed a possible tendency to concentration near water, and in one village, where they were few, the presence of a flourishing colony of Swifts (*Apus apus*) may account for their small number. As will be seen from a comparison with figures of other years they are far more fickle than Swallows and fluctuate in number from year to year in an unaccountable way.

None of the 1934 figures showed a density so high as that of the Oxford census of 1931 and 1932, where concentration in the urban rather than the rural part of the census area was most marked.

Industrial and urban districts in the north of England show a very low density.

The favourite nesting-sites are the deep eaves of houses and other buildings and they also favour corrugated-iron hay-ricks, but many apparently suitable sites are unoccupied and a principle governing their distribution cannot be suggested from the scanty data so far available.

NOTES

SOME RESULTS OF TRAPPING AND RINGING.

CERTAIN results accumulated during several years of trapping and ringing in a garden are offered below. These are confined to information obtained by operations in a fixed and limited area; observations obtained in other ways, either in the garden or in the surrounding country, have been excluded of set purpose.

It occurred to me to take the opportunity of putting on record the *live* weight of the species captured, for while here and there in British books of reference one finds mention of the weights of birds these records are, usually, their weight when dead. Accordingly birds of twenty-two species were weighed with the following results in grammes :—

		Wghd.	Heaviest.	Lightest.	Average.
Starling (<i>Sturnus v. vulgaris</i>)	...	2	91.10	67.75	79.42
Linnet (<i>Carduelis c. cannabina</i>)	...	2	15.40	14.20	14.80
Bullfinch (<i>Pyrrhula p. nesa</i>)	...	5	22.80	19.50	21.04
Chaffinch (<i>Fringilla c. cælebs</i>)	...	17	27.65	18.90	21.87
House-Sparrow (<i>Passer d. domesticus</i>)	...	19	28.50	21.55	26.00
Meadow-Pipit (<i>Anthus pratensis</i>)	...	1	16.55	—	—
Nuthatch (<i>Sitta c. affinis</i>)	...	8	25.30	20.75	23.42
Great Tit (<i>Parus m. newtoni</i>)	...	94	22.10	16.75	19.25
Blue Tit (<i>Parus c. obscurus</i>)	...	144	12.70	9.35	11.05
Coal-Tit (<i>Parus a. britannicus</i>)	...	8	9.10	7.65	8.60
Marsh-Tit (<i>Parus p. dresseri</i>)	...	7	12.10	10.10	11.00
Golden-crested Wren (<i>Regulus r. anglorum</i>)	...	1	4.85	—	—
Chiffchaff (<i>Phylloscopus c. collybita</i>)	...	1	8.00	—	—
Willow-Warbler (<i>Phylloscopus t. trochilus</i>)	...	5	8.90	7.10	8.20
Wood-Warbler (<i>Phylloscopus s. sibilatrix</i>)	...	2	13.95	13.75	13.85
Garden-Warbler (<i>Sylvia borin</i>)	...	7	14.75	12.15	13.52
Whitethroat (<i>Sylvia c. communis</i>)	...	1	14.25	—	—
Song-Thrush (<i>Turdus e. ericetorum</i>)	...	11	100.20	66.30	81.00
Blackbird (<i>Turdus m. merula</i>)	...	27	120.80	86.75	100.34
Nightingale (<i>Luscinia m. megarhyncha</i>)	...	1	25.40	—	—
Robin (<i>Erithacus r. melophilus</i>)	...	109	25.30	15.50	19.70
Hedge-Sparrow (<i>Prunella m. occidentalis</i>)	...	69	25.75	17.05	21.73
Wren (<i>Troglodytes t. troglodytes</i>)	...	7	10.90	7.05	9.27
Swallow (<i>Hirundo r. rustica</i>)	...	1	17.05	—	—

A considerable number of certain of these species were trapped many times. These were weighed on various occasions, it being found that the weights of individuals were not constant, they showed marked fluctuations. For example, a Great Tit caught on sixteen occasions was weighed seven

mes; its weight varied from a minimum of 19.45 to a maximum of 20.10. A Blue Tit trapped fifteen times varied from 9.50 to 11.15. A Robin caught thirty times, from 20.70 to 23.50. A Blackbird caught twelve times, from 91.80 to 20.80. A Hedge-Sparrow caught thirteen times, from 19.60 to 21.85; while a Nuthatch caught sixteen times showed a range from 24.00 to 24.80.

Whether these variations were due to recently ingested food or lack of food was not ascertainable, but seems probable.

Several other curious points revealed by trapping and weighing may be worthy of mention.

Fluctuations in numbers of the various species were discussed. These seem to indicate that group movements, perhaps of a local character only, perhaps of a wider nature, take place at certain times of the year. For instance, in 1932, I trapped seventeen Chaffinches; none in 1933, and none only in 1934. The majority of these were "birds of the year", fifteen of them being caught in July and not seen again. In 1932 seventy-four Robin captures were made;

in 1933 thirty-two were trapped; in 1934, forty-eight. With the Robins, August and July were the favourite months. The suggestion of passing bands is borne out by the visits of a group of five Robins which were first caught on the 26th, 28th and 29th of January, 1932. They then disappeared but were all caught again on the 7th and 9th of December of the same year.

Many birds are caught once only, others stay about the garden for a while, being repeatedly trapped, then disappearing. Some of these, like the Robins mentioned, return after a more or less prolonged absence. Without taking into consideration any reappearances which occurred before an absence-period of 100 days had elapsed there have been twenty-six Great Tits which were caught after absence-periods ranging from 130 to 561 days; eleven Robins recaptured after absences of 104 to 757 days; twenty-three Blue Tits after 108 to 1,116 days; four Hedge-Sparrows after 225 to 413 days; one Song-Thrush after 304 days; four Blackbirds after 104 to 485 days; three Nuthatches after 268 to 472 days; one Coal-Tit after 304 days and four Marsh-Tits after 335 to 806 days.

Another interesting reappearance was that of a Great Tit which, after being deported a distance of two miles and released, returned to the garden and nested there in 1933 and 1934. As it is still about I am hoping it will nest for a third time.

Attention may be called to the visits of two Marsh-Tits for they seem to indicate a permanent partnership.

Both these birds were first trapped on the same day, February 9th, 1932, one being ringed on the right leg and the other on the left leg. Both were caught again on the same day, January 9th, 1933. On March 3rd, 1935, two Marsh-Tits appeared in the garden ringed as above. The one ringed on the right leg was trapped and proved to be one of the 1932 birds; the one with the left leg-ring would not be caught, but its association with the other offers a fair assumption that it also was a 1932 bird.

We have thus the close association of the same two birds at widely separated intervals.

In these days of census taking, a garden census of Tits seemed worth making. Accordingly endeavours were made on two occasions, by using, not guess-work, but a trap, to find out the exact number of Blue Tits frequenting the garden. During the three hours from 10 a.m. to 1 p.m. every Tit possible was trapped. The first trapping, in January, resulted in a catch of twenty-four, five others being seen though not secured. The second trapping, which took place in March five weeks after the first, yielded thirty-seven Blue Tits, three others being seen but not caught. Of these Tits twelve were birds which had also been captured and ringed on the first trapping; two had been caught and ringed in 1932 and 1933, and had not been seen for 1,116 and 768 days respectively; the remainder had not been trapped before.

During the second trapping, besides the Blue Tits, eighteen Great Tits were caught and also three Marsh-Tits, one other being seen.

That sixty-two individual Tits should be present in a small area during the short period of three hours seems somewhat remarkable.

As many of these birds appeared to be immature, was the assembly the concentration of those reared in the neighbourhood during the last breeding season? Or do the numbers indicate a large and widespread Tit population in the country? Severe weather would not account for the numbers for the winter has been unusually mild. Whatever the explanation the numbers certainly point to a considerable *daily* movement taking place among these birds, for the largest number I have ever seen in the garden at one time is twelve.

It may, perhaps, be useful to say that the garden covers, approximately, two acres. It is in an isolated portion surrounded by meadows in which are small patches of woodland,

ne of which almost touches. A small stream runs on one side and a larger one a field away on the other. It has the usual furnishing of flowers, shrubs, fruit trees and vegetables, and is bordered by high old hedges and several large trees.

Finally, as an odd little fact, it was found that a bird of any species, if carefully placed on its back on the left hand unhampered in any way, care being taken to avoid making a noise or moving abruptly, would remain quietly where placed with legs in air and eyes alertly open for an indefinite period seemingly unafraid.

GEORGE MARPLES.

BIRD CONCENTRATION IN A SMALL AREA IN LANCASHIRE.

As an example of the concentration of birdlife on a sewage farm despite the proximity of houses and city roads, it is interesting to record that in one hour, in ten acres (measured) of the Liverpool Corporation Sewage Farm inside the city bounds between West Derby and Fazakerly, on the afternoon of April 19th, 1935, in mixed sunshine and rain, with a very light south-west wind, I counted 359 birds of 29 species, taking every care not to count any birds twice and leaving out about ten small birds that rose out of identification range. The area comprised a small lake of some three acres, a marsh of about two acres, a muddy field, and the brick pumping buildings with a few shrubs, the whole bordered by brooks and the River Alt and within easy sight from housing estates and main roads. The count was: Starling 70; Golden Plover, a flock of 62 birds that kept together, often taking flight over the distant countryside, and separated from these males in breeding dress and 4 females; 35 House-Sparrows (near the buildings); 31 Moorhens; 35 Rooks; 38 Snipe; 1 Redshank; 8 Sky-Larks; 6 drake Teal, 5 duck Teal, 1 drake Mallard, 1 duck Mallard; 8 male Chaffinches, 2 female Chaffinches; 7 Reed-Buntings; 7 Pied-Wagtails; 5 Lapwings; 3 Jackdaws; 2 each of British Lesser Black-backed Gull, Song-Thrush, Wood-Pigeon, Partridge, Linnet and Meadow-Pipit; and one each of Kestrel, cock Pheasant, Heatear, Swallow, Sandpiper, cock Blackbird, Black-headed Gull.

On six acres of the same estate, in half an hour, on April 19th, a sunny day with no wind, I counted 138 birds of 26 species: 23 House-Sparrows, 15 Linnets, 19 Moorhens, 1 Starling, 9 Redshank, 8 Rooks, 6 Snipe; 4 each of Yellow Wagtail, British Lesser Black-backed Gull, Black-headed Gull; 3 each of Lapwing and domestic Pigeon (homers);

2 each of Chaffinch, Ruff, Teal, Pied Wagtail, Reed-Bunting, Partridge, Herring-Gull, Sky-Lark; one each of Mistle-Thrush, Willow-Warbler, female Pheasant, Kestrel, Dunlin, Song-Thrush. For some weeks in August and September, 1934, the average number of Ruffs and Reeves (mostly immature) on a five-acre section of the estate, was 8, while on December 26th, 1934, a flock of Lapwings I estimated by sectional counts to be about 5,000, was over the whole estate, about 200 acres.

ERIC HARDY.

NUMBER OF YOUNG REARED BY THE ROOK.

IN view of Mr. J. P. Burkitt's interesting remarks (*antea*, Vol. XXVIII., p. 323) regarding the number of young reared by the Rook (*Corvus f. frugilegus*), it may perhaps be worth while recording some data obtained whilst ringing nestlings near Leeds in 1933, 1934 and 1935.

The details obtained were as follows :—

		<i>Nest- lings ringed.</i>	<i>No. of broods.</i>	<i>Broods of</i>				<i>Average brood.</i>
				I	2	3	4	
1933.								
Rookery B	...	35	23	14	6	3	—	1.52
1934.								
Rookery A	...	93	43	10	17	15	1	2.16
„ B	...	50	26	8	12	6	—	1.92
„ C	...	35	18	4	11	3	—	1.94
„ D	...	17	9	3	4	2	—	1.88
„ E	...	5	3	2	—	1	—	1.66
„ F	...	1	1	1	—	—	—	1.00
		201	100	28	44	27	1	2.01
1935.								
Rookery A	...	67	31	4	19	7	1	2.16
„ B	...	32	17	5	9	3	—	1.88
„ C	...	20	11	5	3	3	—	1.82
„ D	...	19	11	5	4	2	—	1.73
Total	...	138	70	19	35	15	1	1.97

As in 1934 and 1935 the majority were ringed when about a fortnight old, and not when ready to fly, it is probable that an even smaller proportion actually left the nests.

In 1933 the number ringed was only 35, so that the average number obtained cannot be treated as strictly accurate, but

is of interest in that the young were ringed in early May, when the majority were almost ready to leave the nests.

C. WONTNER-SMITH.

CONTINENTAL JAYS IN KENT.

THE note by P. A. Buxton (*antea*, Vol. XIV., p. 185) recording an example of *Garrulus glandarius glandarius* from Fairhill, between Tonbridge and Hildenborough, and the fact that but few specimens of the Continental Jay from Kent have been noted, seems to make it desirable to record a male and female shot by myself on December 1st, 1934, at Shoreham, near Sevenoaks. These birds have been compared with and match samples from the Continent, Germany, Switzerland, France (Pyrenees) and Holland, in the greyness of their backs, and would therefore seem to be definitely immigrant Jays.

JAMES M. HARRISON.

COURTING DISPLAY OF A MALE FIRECREST, IN SURREY, IN APRIL.

On April 13th, 1935, at 10 a.m., on a fine, sunny and warm spring morning, I was standing beside a cedar tree (*Cedrus atlanticus*) in a garden in Surrey, when my attention was attracted by the peculiar behaviour of a pair of Golden-crested Wrens (*Regulus r. anglorum*) which were evidently in the act of pairing for, amidst considerable commotion, they fell—tumbling distractedly over one another—almost at my feet. So absorbed were they in their amatory overtures, that they took no notice of my presence or that of my two companions; when suddenly from a neighbouring tree there shot a third individual, which forthwith proceeded to disturb this entrancing domestic scene. The intruding stranger soon proclaimed himself to be none other than a male Firecrest (*Ignicapillus*). He was slightly larger with a different tinge, and a distinct superciliary stripe, but all doubts about the identification of the intruder were dispelled when he erected the very striking and distinctive flame-coloured crest. It was noticeable, too, how more erectile and striking was this crest than in the case of the male Goldcrest, which was obviously, and quite justifiably, excited and annoyed at the un-called-for intrusion on the part of his rarer congener. After having made himself generally offensive as the *tertium quid*, the Firecrest gradually drew away and was not seen again, but left the Goldcrests undisturbed in their bliss. They, however, were completely cowed by his martial air.

I record this as being an undoubted occurrence of a male Firecrest, evidently in full breeding capacity, in Surrey as late as April 13th.

PHILIP MANSON-BAHR.

BLACK REDSTART IN ESSEX.

DURING a strong northerly gale on January 26th, 1935, I saw a Black Redstart (*Phœnicurus o. gibraltariensis*) at King George's Reservoir, Chingford, Essex. It seemed quite tame, possibly through exhaustion, and several times it let me walk to within some fifteen yards before taking flight.

On the same day I came upon a party of Herons (*Ardea cinerea*) asleep under the shelter of the stone parapet surrounding the reservoir. All sound of my approach must have been deadened by the noise of wind and waves.

Cautiously creeping above them I grasped one carefully about the neck. Its fearful cries immediately aroused the others which flew off in disorder.

On launching my captive into the air, the wind carried it out over deep water into which it fell, but after some floundering it was able to rise heavily from the surface. K. R. ASHBY.

FOOD OF KESTREL.

BETWEEN May 31st and June 29th, 1932, the following birds and mammals were recorded at the nest of a Kestrel (*Falco t. tinnunculus*) observed near Cissbury Ring, west Sussex :—

Twelve short-tailed field mice, six house mice, seven shrews, three young Starlings, one young Lapwing, one House-Sparrow, one Linnet, one Chaffinch, one Hedge-Sparrow.

B. T. PARSONS.

THE GREAT CRESTED GREBE AT ELSTREE RESERVOIR.

THE following notes are partly supplementary to the article on the Great Crested Grebe (*Podiceps c. cristatus*) at Tring Reservoirs by Charles Oldham in *British Birds*, XXVIII., pp. 250-256.

Elstree Reservoir, lying less than 20 miles to the S.E. of Tring Reservoirs, on the Middlesex and Herts border, is about 80 acres in extent, with relatively little suitable nesting-cover for the Great Crested Grebe. It is therefore particularly convenient for observing fluctuations in the numbers of this species. The normal number of nesting pairs during the breeding season is only two to three ; and it is probable that

All these with most of their progeny regularly leave the district in late autumn or early winter (November and the beginning of December), returning in late February or March. In winter their place is filled to some extent by winter visitors. At irregular intervals in winter and early spring, and occasionally at other seasons, small parties of Great Crested Grebes appear on the reservoir, often remaining for several days or longer, sometimes, apparently, only for a few hours.

My observations over a number of years make it clear that there are frequent though small passage movements, the numbers of the birds being easily noted; and they amply confirm the views expressed by Charles Oldham (*loc. cit.*) as to the annual migration of the local breeding stock.

During 1934 I visited the Reservoir on more than 100 occasions. The dry season was a bad one for the nesting of this species, and three frustrated pairs left in late summer. It is possible, of course, that some of the extra birds which appeared here in early summer, when the local pairs were well established, were wanderers from Tring or elsewhere in the vicinity.

The following selections from my notes in 1934 and 1935 will serve to show the marked fluctuations in numbers during the year.

1934:—On January 20th there were two on the water. January 21st, 27th and February 15th—none; 22nd—two. March 4th—four; 8th—five; 11th, 18th and 25th—ten. April 1st and 6th—six; 13th—eight; 15th—fifteen; 16th—twelve; 19th—six; 24th—eight. May 19th—six; 23rd—one; 29th to June 6th—seven; 12th-14th—six (these remained through the summer). August 5th—four; 11th and 14th—one pair and one self-fending bird of the year; and to September 19th—two only (a pair, always together); and—three; 27th and 30th—two. October 4th—four; 11th—three; 14th and 20th—seven; 26th and 27th—three. November 1st—two; 11th—four; 17th and 18th—two; 24th and December 1st—none; 8th—one; 13th—two; 24th—three; 18th and 20th—one.

1935:—January 20th—three. February 3rd—none; 9th—one; 24th—three. March 5th—five; 12th—five; 19th—ten (five left in the evening); 31st—five. April 7th—three; 14th—five; 19th—seven; 21st—two. BERTRAM LLOYD.

RED-THROATED DIVER IN MIDDLESEX.

Mr. Glegg's recent *History of the Birds of Middlesex* shows that in a period of nearly a century preceding the publication

of the book there were only eleven records of the Red-throated Diver (*Colymbus stellatus*) in the county, it seems worth mentioning that a bird of this species appeared on December 16th, 1934, at the reservoirs at Staines. By January 3rd, 1935, it had been seen on eleven different days by various observers. After an interval of more than a fortnight, during which it was looked for in vain, it was seen twice more, on January 19th and 20th. It is possible, though it may not be very likely, that the bird which was observed after the interval was not the one previously seen. F. R. FINCH.

KENTISH PLOVER IN BERKSHIRE.

At Reading Sewage Farm on the afternoon of April 14th, 1935, we watched a Kentish Plover (*Charadrius alexandrinus*) feeding on a small patch of mud in one of the partially flooded fields. Mr. W. B. Alexander, who was on another part of the farm, came over and immediately confirmed our identification.

C. W. GEOFFREY PAULSON.

G. DES FORGES.

SPOTTED REDSHANK IN HAMPSHIRE.

On April 22nd, 1935, we flushed a Spotted Redshank (*Tringa erythropus*) from the side of a disused salt-pan in what is now known as Keyhaven Marsh. From the colour of its underparts it would appear to have been changing into summer plumage. Our attention was first drawn to it by the distinctive *tchu-i* note; in flight the absence of white on the wing was also noticeable. The only records of the Spotted Redshank in Hampshire during the present century, of which we know, refer to three or four seen or obtained at intervals during the past twenty-five years in the Avon Valley, at Ringwood and Christchurch.

K. B. ROOKE.

K. D. SMITH.

GREAT SKUA OFF TENERIFE.

As the *Practical Handbook* gives the southern limit of the Great Skua (*Stercorarius s. skua*) on this side of the Atlantic as Madeira, and as I understand no further south observation has been recorded, it is worth noting that I saw a single Great Skua off the south point of Tenerife on the afternoon of February 15th, 1935.

The exact position of the ship was 28° N., 16° 20' W., about fifteen miles off shore, practically due east of the south point of Tenerife. I watched the bird with powerful binoculars for

several hours as it kept coming up level with the ship and rattling on the water, the nearest approach being about one hundred yards away. When the ship got about a quarter of a mile ahead of the bird it rose and followed us up again, and it did this for several hours, in fact I last saw it just at dusk. I may add that I know the bird very well in its nesting quarters in Shetland, and was able to see it so well on this occasion and for so long that I consider the identification in every way satisfactory.

DONALD CROSS.

FORMER ABUNDANCE OF BLACK GROUSE IN SUSSEX.

ERRER (*Birds of Sussex*, p. 182) only quotes one reference to the former abundance of the Black Grouse (*Lyrurus t. tannicus*) in Ashdown Forest, so that it seems desirable to place on permanent record in ornithological literature any further evidence that makes its appearance.

Mr. W. A. Raper, of Battle, has recently deposited with the Sussex Archaeological Society his notes of evidence used in the litigation between Earl de la Warr and the Commoners of Ashdown Forest in 1878. He interviewed all the old men living in the Forest and noted their life histories and all they could tell him. Extracts from these have just been printed in *Sussex Notes and Queries* (V., pp. 146-7) and include the following.

James Baker, baptized at Hartfield, 1804, lived at New Lodge ever since 1818. "I remember as a boy seeing Major Falconer shooting on the Forest frequently and in broad daylight. There was plenty of game on the Forest, particularly hares, and plenty of black cock. I have seen as many as eighteen cocks together in the winter inside New Lodge Farm. In those days there were no fir trees whatever in the Forest, except one clump planted on Gills Lap. Afterwards four others were planted."

John Brooker, born 1806. "When I was a boy there was a tall of full-grown Scotch fir called the Mount, but with that exception there were no firs on the Forest. In after years tall of young Scotch fir were planted. Major Falconer and Mr. Nugent used to shoot on the Forest and I always used to go with them. We used to shoot anything that got in."

There used to be plenty of Blackcock in those days on the Mount and Kings Standing. I have seen as many as eighty in a drove in the winter above New Lodge. In those days the Forest was heavily timbered in parts."

N. F. TICEHURST.

EASTERN SKY-LARKS IN OUTER HEBRIDES.—At the February, 1935, meeting of the British Ornithologists' Club, Colonel R. Meinertzhagen exhibited two pale grey Sky-Larks shot from a flock of about thirty similar birds on January 18th, 1934, in South Uist. Colonel Meinertzhagen considered the birds were of one of the many central Asiatic forms described, and identified them, provisionally, as *Alauda arvensis cinerea* (*Bull. B.O.C.*, Vol. LV., p. 110).

GREAT GREY SHRIKE IN SUFFOLK.—Mr. W. A. Cadman sends us a good description of a male Great Grey Shrike (*Lanius excubitor*) which he watched under good conditions near Brandon on March 26th, 1935.

WAXWINGS IN HAMPSHIRE.—Major M. Portal informs us that he saw at close quarters two Waxwings (*Ampelis garrulus*) on March 15th, 1935, at Swanmore, and Messrs. C. T. Dalgety and M. J. Ingram write that they saw one on April 28th at Romsey.

BLACK TERNS IN HAMPSHIRE AND BRECONSHIRE.—Messrs. K. B. Rooke and K. D. Smith write us that they saw a Black Tern (*Chlidonias niger*) at Keyhaven on April 22nd, 1935, and we are informed that Capt. Neville Gladstone saw one at Ringwood on May 3rd, 1935, while in 1929 he saw one there on May 6th.

Sir Thomas Lewis writes that he saw a Black Tern on May 3rd and 4th at Llangorse, Breconshire.

EASTERN LITTLE BUSTARD IN ABERDEENSHIRE.—Mr. W. Tawse reports to the *Field* (2.iii.'35, p. 448) that a female Little Bustard, identified as the eastern form *Otis tetrax orientalis*, was shot on the Pitfour Estate, near Peterhead, on January 3rd, 1935. The crop contained clover leaves and a few blades of grass. The bird weighed 1 lb. 8 oz. A photograph bearing out the identification is reproduced.

REVIEWS

A History of the Birds of Middlesex. By William E. Glegg, F.Z.S., M.B.O.U. Witherby. 18s.

It was with Harting's *Birds of Middlesex*, published in 1866, that modern county ornithologies began, and the lapse of nearly seventy years, during which the face of the county has changed to an astonishing extent, amply justifies Mr. Glegg in his production of a new volume on the subject. Even in Harting's day buildings and reservoirs had a strong influence upon the county avifauna, and since his book was published nearly a dozen new reservoirs have been completed, covering about two square miles with water, and a large part of the remaining surface has become a built-up area.

The county is a small one, and the author admits only 77 regular breeding species to his list, of which 54 are residents and 23 summer residents. Winter residents (19) and passage migrants (13) bring the list of birds occurring annually up to 109, and a further 131 irregular visitors bring the total to 240. Among well-known British birds which apparently do not breed regularly in Middlesex are the Wood-Lark, Grey Wagtail, Wheatear, Wryneck, Long-eared Owl, Heron, Curlew, Woodcock and Corncrake, in addition, of course, to all shore-breeding and northern or western species. On the other hand Middlesex can show a number of interesting birds, particularly on passage and in winter, when such species as the Smew and Slavonian Grebe occur with considerable regularity.

The strong point of Mr. Glegg's treatment is the monumental thoroughness with which he has explored nearly thirteen hundred references, and thereby settled many doubtful points besides bringing to light many facts of the greatest interest which would otherwise have remained unknown. His treatment of London rookeries is one example. His documentation is admirable, and this is perhaps the most important virtue that a county ornithology can claim. He also deserves credit for the care which he has taken to sift many questionable records, and though he has admitted one or two which will not escape future suspicion (such as Bowdler Sharpe's almost incredible account of seeing a large flock of Knots passing over his garden too high to be seen, at 11 o'clock in the morning of August 11th, 1895) he has on the whole been cautious, for instance in refusing to accept sight records of Greenland Wheatears.

A few minor points of criticism which have been met with in reading may be worth setting down. On page 4 it is stated that the Carrion Crow is usually seen singly or in pairs, and parties of from ten to fifty are singled out as remarkable. Surely any winter afternoon more than this may be seen gathering to the roost in Ken Wood, whose existence is not referred to. Again, of the roosting Starlings in Inner London we read: "To compute the numbers which roost on these buildings is impossible", but it has in fact been done by two independent observers (whose counts tallied closely) in connexion with the recent census of Starling roosts.

It is, however, from a topographical and ecological standpoint that this work is most likely to be found wanting. The plates have been all chosen from aerial photographs illustrating typical areas, but the map looks as if it had been taken from a railway guide, and fails to give any idea of the contrast between built-up and rural areas, while the three pages headed "Ecology" give a somewhat meagre account of some of the most significant features of Middlesex natural history.

As a record of status and occurrences this is an invaluable work: cannot, perhaps, legitimately be criticized for stopping short at that. But the author would no doubt agree that he has touched the fringe of other questions which deserve to be more fully followed up.—E.M.N.

British Trust for Ornithology. First Report. Spring, 1935.

This Report gives a summary of the results of the field work undertaken and in progress as well as setting out the constitution of the Trust, its officers, its future aims and its present financial position. A strong appeal is made for wider support and more members, and it is quite clear that this must be achieved if the work of the Trust is to be extended, or even maintained at its present level.

Readers of *British Birds* are well aware of some of the work which has already been done. Mr. Nicholson's report on the Heron population appeared in our April issue, while Mr. Boyd's report on the Swallow Enquiry will be found in the present number. The large and important investigation into the status of the Woodcock all over the country has already produced a mass of valuable material and is still proceeding. Other enquiries upon which reports will shortly appear are concerned with birds inhabiting heaths and moorlands, Owls and vole plagues, and the spread of the Fulmar Petrel, while work in progress includes the effect of drought upon water birds, new reservoirs and bird life, birds and buds, tameness in wild birds and habitats of special species.

There is thus a wide choice of useful subjects for field workers to help in and for ornithologists generally to support.

This first Report certainly proves that the Trust can initiate and carry out through its organization enquiries of the most valuable kind, and there can be no doubt that as its work becomes better known it will receive all the support it requires and we can only advise our readers to join its ranks without delay. Enquiries regarding membership may be addressed either to Mr. B. W. Tucker, the Hon. Treasurer, at the University Museum, Oxford, or to Mr. E. M. Nicholson, the Hon. Secretary, at 61, Marsham Street, S.W.1.

The Little Owl: an examination of its Food Habits. By A. Hibbert Ware (reprinted from School Nature Studies, 4 pp.)

MISS HIBBERT WARE gives us here the result of a study of the feeding habits of the Little Owl (*Athene n. vidalii*), based largely on her own observations in Essex and Cambridgeshire during the last fourteen years. Like that of Dr. Collinge, who based his conclusions on the examination of stomach contents, while Miss Hibbert Ware's are drawn mainly from the study of pellets and larders, the verdict is decidedly in favour of the Little Owl. The number of Passerine birds used is said to be "small and negligible", while the species usually taken are very abundant and game and poultry "cannot be said to form any part of the food of the Little Owl as a species". It is, however, admitted that possibly individuals may develop a taste for preying on chicks when nesting near them, but this has not come within the scope of her researches.

It will be seen that both investigators regard it as a valuable ally to the agriculturist and in no sense as an enemy to the poultry keeper, the game preserver or the bird lover. How are we to reconcile these conclusions (based on incontrovertible facts) with the general dislike and distrust of this bird?

There seems to be no doubt whatever that many Little Owls are not merely harmless but actively useful. On the other hand it is a newcomer to this country and its increase has been extraordinarily rapid. The only real check on it in England is the keeper's gun, and the numbers killed on some estates are astonishing. When twenty pairs of a bold and enterprising, even though small, raptorial bird become established on ground which originally supported only two or three individuals of other species, it is inevitable that some damage should be done. Even Dr. Collinge admits that it does destroy young game birds, but adds that the percentage (.51) is so small that it is negligible. Nevertheless the damage which can be done by a single pair of a bird capable of killing a Wood-Pigeon or Mistle-Thrush is considerable. F. M. Ogilvie records a case where 16 Pheasant chicks out of 18 were taken on one day between 10 a.m. and 3 p.m.—and other cases of a similar kind have been reported. It must also be remembered that

t of the breeding pairs near a rearing field have been shot down in the season, and that the period when this food is available is t, so that the number of incriminating pellets is necessarily small the percentage misleading. In any case its presence in large numbers must tend to displace such species as the Kestrel and our native s and should be discouraged, but in moderate numbers it is a useful titute for our vanished raptorial fauna and a check on the sequent increase of small rodents.

F. C. R. JOURDAIN.

Revised List of the Birds of Dorset. By Rev. F. L. Blathwayt.

SEL-PLEYDELL'S *Birds of Dorsetshire* appeared as long ago as 1918, and in 1918 Mr. Blathwayt published a paper on species added to the county list, so that the present list giving a revised and up-to-date list of the birds of the county is very welcome. Two hundred and twenty-five forms are now fully admitted, but it might have been better if it had been rather more critical and to have used square brackets for those of these, thus indicating their inclusion as doubtful. This applies especially to scarce or rare stragglers admitted solely on light records and often on only one such record. Some of them are given subspecific rank.

A brief status is given for each bird and this will be useful for reference as a foundation for observers to work on and extend, and many interesting notes will be found here. We may hope some time in the future that a full and up-to-date work on the birds of this interesting county will be undertaken. Meanwhile we welcome Mr. Blathwayt's useful list.

Birds of a Lancashire Cotton Town. Being Notes on the Avifauna of Heywood. By Irvine Whittaker, M.B.O.U. 2nd ed. (Heywood: R. Howe, Ltd.). 12s. 6d.

WHITTAKER writes of a district some thirteen square miles in extent, largely industrial, nine miles north of Manchester and bordering the Pennines. Mr. Thomas Baddeley's very beautiful photographs, of which the volume is illustrated, certainly give no hint of industrialism, and judging by these alone one might conclude that Whittaker's district was ideal for birds. No summary of numbers is given, but there appear to be some 125 species recorded, about half of which breed or have bred. The author gives an account of the habits of each and in many cases adds valuable first-hand notes on birds observed by him in the district. As the district includes a large part of the Pennines a good many moorland birds add much to the interest of the list.

A curious feature of the book is that the nomenclature follows the B.P. List of 1915, which has long been out of date and superseded by a new list. Mr. Whittaker does not say why he ignores all the work of the Committee for the last 20 years. And even the old list has been inaccurately copied.

LETTERS.

MYTHOLOGY OF WOODPECKER.

To the Editor of BRITISH BIRDS.

SIR,—May I ask for your kind help and that of your readers in regard to a problem which has arisen in the course of some investigations into the worship of bird-gods in ancient times in Europe. The Woodpecker, as Aristophanes informs us in a well-known passage, was one of these and it has been maintained, with, as I believe, a good deal of

cogency, that the worship of the Woodpecker arose through its association with the oak—the tree especially sacred to the thunder-god. The points on which I would like to have the assistance of your observant readers are these: Does the Woodpecker show any preference for the oak in which to nest? Does it “drum” more frequently on oaks than on other trees? Is the sound any more resonant than when other trees are chosen?

A further point arises: As is well known the Woodpecker is called the “Rain-bird” and its cry is supposed to presage rain. I doubt whether there is anything in this and believe the superstition may have arisen through the bird’s connexion with the oak—the thunder-tree. I would be grateful if your readers would be so kind as to supply me with information on this matter. For example, during periods of drought, is the Green Woodpecker less frequently heard than in showery weather?

Of course, detailed observations would be most useful—as, for example, a survey of Woodpecker nesting-sites over an area of mixed woodland—but any accurate information will be acceptable. I am most interested in particulars concerning the Green Woodpecker, but would also like to have details about other species—especially *Dryocopus martius*.

E. A. ARMSTRONG.

THE CLERGY HOUSE, PARISH CHURCH, LEEDS.

20th April, 1935.

WEIGHT OF PINK-FOOTED GOOSE.

To the Editors of BRITISH BIRDS.

SIRS,—Mr. Caton Haigh may be interested to know that many years ago I published in *The Field* a list of weights of all the species of wild geese that I had shot in Holland, as for some years I had been in the habit of weighing all the freshly killed specimens that came to hand. In the Pink-footed Goose (*Anser brachyrhynchus*) my figures agree extraordinarily well with those of Mr. Caton Haigh (Vol. XXVIII., p. 369), my largest being 8 lbs. and the smallest $4\frac{1}{4}$ lbs., compared with his largest 8 lbs. and smallest 4 lbs. T. M. Pike and I arrived at the same conclusion years ago that the amount of pink on the bill varied with individuals more than with age, though, speaking generally, we found that apparently young birds had the most colour. I weighed 105 Pink-footed Geese whose average weights worked out at 6 lbs. (about).

H. LEYBORNE POPHAM.

HUNSTRETE HOUSE, PENSFORD,
Near BRISTOL.



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CONTENTS OF NUMBER 2, VOL. XXIX., JULY 1, 1935.

	PAGE
Field Notes on the Coot. With special reference to its Winter Movements and Diving Habits. By G. C. S. Ingram, M.B.O.U., and H. M. Salmon, M.B.O.U.	38
Remarkable Spring Migration of Manx Shearwaters and other Sea Birds off Cape Cornwall. By W. H. Thorpe, M.A., PH.D.	43
Observations on Times of Feeding. By George Marples ...	45
Recovery of Marked Birds I.	50
Notes :—	
Pied Wagtail Roost on a Leicester Building (W. E. Mayes) ...	56
Pied Wagtail Roost in Gorse (R. M. Lockley)	58
Blue Tit Nesting in Kingfishers' Nesting Hole (P. A. Clancey)	58
Irregular Laying of Blackcap (J. E. Roberts)	58
Probable Breeding of Nightingales in Denbighshire (Major W. M. Congreve)	59
Golden Eagle Mating during Incubation (Seton Gordon) ...	60
The Goldeneye of Kensington Gardens (A. H. Macpherson) ...	60
Injury-feigning Movements of Ringed Plover (M. Mitchell) ...	61
Door-Hen using Wings under Water (Sir T. Lewis)	61
Incubation by both Cock and Hen Common Partridge (Rev. P. F. Bywater)	62
Port Notes :—	
Fulmar Petrel's Breeding Status in Yorkshire. Iceland Gull in Yorkshire. Abnormal Variety of Kittiwake. Razorbill Inland in Essex. Large Clutch of Moorhen's Eggs. Quail in Yorkshire in Winter	63
Views :—	
The Birds of Midlothian. By J. Kirke Nash, L.D.S.	64
On the Habits and Distribution of Birds in the North Atlantic. By V. C. Wynne Edwards	66



FIELD NOTES ON THE COOT.
WITH SPECIAL REFERENCE TO ITS WINTER MOVEMENTS
AND DIVING HABITS.

BY

GEOFFREY C. S. INGRAM, M.B.O.U.

AND

H. MORREY SALMON, M.C., M.B.O.U.

ALTHOUGH the distribution of the Coot (*Fulica a. atra*) in the breeding-season is limited by its requirements in the matter of nesting sites, it is, even so, by no means numerous in the west and south-west of Britain. It is therefore obvious that the immense flocks which assemble on the lakes and reservoirs of South Wales and south-west England must mainly be immigrants, exactly from where, however, it is difficult to decide.

Described in the *Practical Handbook* as "a partial migrant, northern birds migrating to southern latitudes, wintering in great numbers on lakes and larger ponds, especially in Mediterranean countries to North Africa, &c.", it is probable that the influx is from the north and east, a conjecture which receives some confirmation from the fact that a spell of severe weather in that area of Britain is immediately followed by a sudden increase in numbers here in the south-west. This movement is quite apart from the steady accretion which, beginning in October—sometimes the end of September—continues until December or January, after which the numbers gradually fall, until by the end of March all except the comparatively few residents have drifted away.

Local movements are also apparent in the middle of winter in most years, our records pointing to the arrival and departure of wandering birds, often in considerable numbers. Some of these fluctuations can be traced to weather conditions as already mentioned, but others are plainly not due to this cause.

It seems probable that our winter flocks must include many migrants from the Continent; it would be difficult to account for their numbers otherwise, and yet this surmise is only supported by one record of a bird ringed in Denmark as a nestling in June, 1929, and recovered in Ireland in November, 1931. But other evidence of migration or wandering is forthcoming from records of one seen south-east of the Dogger Bank, February 14th, 1930; a bird ringed as an adult in Kent in March, 1930, and recovered in Pas de Calais, France, July, 1931; three individuals from the Bardsey Light, North Wales, November, 1913, January, 1914, and October,

1919, and the recovery of the remains of European Coot from Labrador and Newfoundland.

We are informed by Mr. G. R. Humphreys that in Ireland there are six records of Coot striking the lights on the coast. Five of these are recorded by Barrington in his *Migration of Birds*, 1900, and the sixth was obtained on September 28th, 1908. One of these birds came from a west-coast light and the remaining five from the east coast. Nothing very certain can be deduced from these records except, perhaps, that as movement is more apparent on the east coast it possibly points to a more or less regular passage of birds passing from Britain. Two of these birds were obtained in September, two in October and two in November and are interesting to compare with the Bardsey Light records.

On August 6th, 1933, when off the Pembrokeshire coast, we were surprised to find a Coot swimming on the sea a good many miles from the mainland; very few, less than half a dozen birds, are known to breed in that county.

These records are insufficient in themselves to do more than indicate a westward movement, but if the species is adequately studied in the future—as it deserves to be—evidence may well be forthcoming supporting the suggested continental origin of a big percentage of the winter flocks.

We have examined a large number of birds which have either succumbed to adverse weather conditions, or been accidentally shot, as so many of them are, but so far have failed to find a single ringed bird. One cripple we tried to capture in order to put it out of its misery, evaded us by diving and swimming away under water with head and neck extended, trailing and using its wings to propel itself with slow and deliberate strokes.

On the Llanishen Reservoirs, both of which are of artificial construction, bare of vegetation and therefore impossible breeding sites, we have watched this species regularly during the winter for the last twelve years. The size of the flocks here has varied greatly from year to year, the largest numbering well over six hundred, being present during December, 1927, while in 1933-34 three hundred and fifty was the maximum, also in December. On the other hand, during the winters of 1929-30, 1930-31, 1931-32 and 1934-35, the greatest number has been less than thirty, though elsewhere flocks appeared to be of the average size. During this period of observation we have paid considerable attention to their diving activities, largely because of the fact that Dr. J. M. Dewar, in his book *The Bird as a Diver*, has

postulated interesting theories which, so far as we are aware, have neither been challenged nor confirmed elsewhere; his observations are, we believe, the only ones that have been published up to the time of writing.

Stated briefly, he suggests that the Coot is different from all other diving birds because the period of its dive contains no bottom time, i.e., the time spent on the bottom searching for and eating food. The Coot goes straight down, grabs a beakful of food and immediately returns to the surface with it. From the material he collected he makes an approximation of the relation of the time of a dive to the depth attained as ten seconds per fathom. This rule was worked out by him from observations made on birds diving in water ranging from one foot to seven feet in depth, and he states that "progress with increasing depths is, however, conjectural, since, as yet, no dives have been recorded in more than seven feet of water". With the object of carrying Dr. Dewar's observations forward a few stages we have for a number of years kept records of Coot diving, more especially in depths over seven feet. These records were all made in mid-winter when the weed had died down, and they were gathered from a reservoir of which we had a contoured chart which enabled us, by means of cross-bearings on the diving bird, to arrive at an accurate (within twelve inches) estimation of the depth. We have altogether timed with a stop-watch one hundred and seven different dives in series ranging from two to twenty-five dives by nineteen different birds. The comparatively small number of records is due to the fact that the Coot appears to favour water of less than seven feet depths when feeding. The following table, compiled from these records, is a summary of our observations to date. Each series of dives refer to an individual bird and where two or more birds have been timed at a given depth they are severally indicated by the letters A, B, etc.

TABLE OF DIVES OF THE COOT.

<i>Depth in ft.</i>	<i>Dives in secs.</i>	<i>Total secs.</i>	<i>Total dives.</i>	<i>Average dive (in secs.).</i>	<i>By Dewar's scale.</i>
5-6.	6, 6, 7, 6, 7, 6, 6.	44	7	6.3	8.3-10
6-7.	10, 10, 8, 11, 12, 11, 6, 8, 11, 9, 10, 9, 11, 12, 11, 11, 11, 10, 11, 11, 8, 12, 12, 10, 12.	257	25	10.3	10-11.7
8.	8, 6, 5, 9.	28	4	7	13.3
9-10.	A. 8, 8, 10, 8, 11, 9. B. 10, 8, 8, 8, 8.	96	11	8.7	15-16.7

TABLE OF DIVES OF THE COOT—(continued).

Depth in ft.	Dives in secs.	Total secs.	Total dives.	Average dive (in secs.).	By Dewar's scale.
9-12.	A. 17, 17, 18, 16, 17. B. 17, 15, 15, 17, 16, 16, 15, 15, 15.	226	14	16.2	16.7-20
12.	13, 11, 12, 13.	49	4	12.25	20
14.	15, 14.	29	2	14.5	23.3
15.	16, 15, 16.	47	3	15.7	25
18.	A. 16, 17, 18, 17, 16, B. 16, 21, 17, 19, 14, 16, 15.	202	12	16.8	30
21.	27, 25, 23, 24, 25.	124	5	24.8	35
22.	A. 20, 16, 19. B. 22, 24. C. 20, 22, 23, 20.	186	9	20.7	35-36.7
23.	A. 20, 18, 21, 20. B. 24, 20, 20.	143	7	20.4	36.7-38.3
24.	20, 22, 23, 20.	85	4	21.25	40

It is only at the depths of six-seven feet and ten-twelve feet that our records agree at all closely with Dewar's ten seconds per fathom rule, and at depths greater than twelve feet it is impossible to correlate our times to that rule.

It will also be noticed that the increase of time in relation to the increase in depth is not always constant. Regarding these discrepancies from the time and depth rule which we have found very constantly, not only in connexion with the coot but also with other diving birds, we are forced to the conclusion that the difficulty or ease of obtaining food under water has a greater bearing on the duration of a dive than Dewar admits in his summing up when he states "the food factor can considerably shorten the periods of individual dives, it has little effect upon the average period of a series of dives and it does not prolong a dive by more than a few seconds".

If we admit that the times shown on our table for the six-seven and ten-twelve feet depths are the normal for the Coot because they bear a closer relation to Dewar's time-depth rule for this species, then our five-six, eight and nine-ten feet averages must have been obtained from birds finding an easy food supply, but, on the other hand, if we ignore the six-seven, ten-twelve and also the twenty-one feet averages, we get a reasonable progression of increasing time in relation to increasing depth from the remainder of the table up to twenty-four feet, as follows:—

Depth	5/6	8	9/10	12	14	15	18	21/22	22/23	24	feet.
Time	6.3	7	8.7	12.25	14.5	15.7	16.8	20.7	20.4	21.25	secs.

It would then appear that the following are above the average and due, we suggest, to extended bottom time arising from a difficulty in obtaining food immediately :—

Depth	...	6/7	10/12	21	feet.
Time	...	10.3	16.2	24.8	seconds.

The dives at twenty-one feet are interesting and rather confirm our theory, for the bird concerned swam out from comparatively shallow water where it had previously been working, and made five consecutive dives at one of the deepest spots on the reservoir. Although it brought up weed at each dive it was not much in comparison with the beakfuls usually obtained, and after these five dives the bird returned to shallower water where the food was, presumably, more plentiful, and easier to obtain. It will be noticed that the three longest dives we have recorded for this species were made by this bird, viz., two of twenty-five and one of twenty-seven seconds and yet the depth was only twenty-one feet. The greatest depths of from twenty-two to twenty-four feet only yielded averages of from 20.7 to 21.25 seconds from a total of twenty dives.

It is admitted that the material upon which we have based these notes is somewhat scanty, but records about which we had the slightest doubt as to the accuracy of either the depth or the time—and there were a great number—have been rejected. We intend to continue our observations and it is hoped that other observers who have the necessary facilities for obtaining accurate data will also turn their attention to specialized observation on this highly interesting species.

REMARKABLE SPRING MIGRATION OF MANX SHEARWATERS AND OTHER SEA BIRDS OFF CAPE CORNWALL.

BY

W. H. THORPE, M.A., PH.D.

THE following observations were made during a stay of a week's duration near Cape Cornwall.

Whenever the Cape or the coast to the north-east was visited between April 6th-10th, 1935, Manx Shearwaters (*Puffinus puffinus*), Razorbills (*Alca torda*), Guillemots (*Uria aalge*) and Gannets (*Sula bassana*) were observed flying steadily in a south-west direction, past the Cape and out to sea past the Lississimos to the north-west of the Longships Lighthouse and in the general direction of the Scilly Isles. At the distance at which the birds were generally observed it was difficult to distinguish between Razorbills and Guillemots, although the former always appeared the commoner. These, together with the Shearwaters, were abundant; that a few were nearly always in sight. The Gannets were only occasional. On April 10th a steady flow of these species was also observed passing westwards along the north Cornish coast past Gurnards Head.

During April 9th there was heavy rain with a strong and refreshing west wind. April 10th was sunny with south-west winds of gale force most of the day, the barometer rising slowly. By 10.30 a.m. on April 11th an enormous movement of shearwaters and other birds was in progress. They were passing the Cape in vast numbers, flying rapidly and in a purposeful manner in a south-west direction as described above. There were far too many birds for even an approximate count to be possible, indeed it was dazzling to watch them through the binoculars. A very rough attempt at a count suggested that they were passing the point at the rate of about 300 birds per minute. This is, I believe, a conservative estimate. I estimated that the flight consisted of approximately 80 per cent. Shearwaters and 20 per cent. Razorbills and Guillemots with, perhaps, 5 per cent. Gannets. Very occasionally a Puffin (*Fratercula arctica*) was seen. The few birds seen flying in the opposite direction were Gulls and an occasional Shag. To my certain knowledge the migration was proceeding on this scale for at least three hours, and in all probability for much longer. Later in the day Pedn-men-du-at, Sennen and Lands End were visited, but no birds were to be seen as their course after leaving Cape Cornwall was to the north-west of the Longships.

I returned to Cape Cornwall at 6 p.m. By that time the movement had greatly subsided ; indeed there were far fewer birds than at any time during the previous five days. Nevertheless an hour's exact count through binoculars gave the following figures :—

<i>Shearwaters.</i>	<i>Razorbills and Guillemots.</i>	<i>Gannets.</i>
155	120	87

On the following morning, April 12th, the migration had recommenced but was still, I estimated, at a rate somewhat below the average for the days previous to the big rush. An exact count gave the following numbers per hour :—

<i>Shearwaters.</i>	<i>Razorbills and Guillemots.</i>	<i>Gannets.</i>
1,460	600	158

The wind was now fresh east-north-east and the flight of the Gannets and Razorbills was not quite so purposeful as before. By the evening of the same day Shearwaters and Gannets had disappeared entirely although Razorbills and Guillemots were still passing at the rate of 240 per hour. On the morning of April 13th, my last day in the district, Shearwaters were again passing at the rate of 400 per hour, but the movements of Guillemots and Gannets were indefinite.

Our knowledge of the movements of ocean birds is still, for obvious reasons, far behind that of most other forms and on this account I feel that the above details are worth putting on record. The enormous scale of the movements of April 11th may have been accounted for in part by the gale of the previous day which had possibly driven the birds in coastwards from the Atlantic. But this would not, of course, explain the migration as a whole. Presumably some of the birds were returning to their breeding places on the Scillies, but this could only account for a very small proportion of the total. There are, of course, breeding colonies of Shearwaters on the French, Spanish and Portuguese coasts and one can only suppose that the birds were bound for one or other of these localities, but it is surprising, to say the least, that these breeding colonies should be recruited from the British coastal waters. It would be interesting to know if there is any evidence of a corresponding north-east migration when the breeding-season is over.

[For previous notes on movements of Manx Shearwaters in this area see *antea*, Vol. XVIII., p. 74, and Vol. XXIII., p. 20.—EDS.]

OBSERVATIONS ON TIMES OF FEEDING.

BY

GEORGE MARPLES.

For some time I have adopted the common practice of feeding birds near the house by providing them with a variety of food—bread, table scraps, suet, seed, coco-nuts and pea-nuts. Gradually I became aware of a certain regularity in the time when each species ceased to feed in the evenings and that some species generally stayed later at the food than others. Whether this was the usual habit or whether it was due to artificial feeding was not easy to determine, but it seemed worth while to find out if the general impression received would be confirmed by more careful observations. Accordingly, on many occasions, note was taken of the time the different species ceased feeding. The result shows that some species *always* ceased early and others *uniformly* late. Besides this came the discovery that a curious relationship existed between the times the Blue Tits (*Parus c. obscurus*) ceased to feed and those of the Great Tits (*Parus m. newtoni*).

It was natural to wonder whether the reverse practice was allowed at the other end of the day. To decide this point I began to watch in the morning while it was still dark, waiting until, with the growing light, the feeding should begin. Unfortunately, as a famous comedian has sung, "It's nice to get up in the mornrrning but it's nicerrr to lie in bed", this being particularly the case in winter, consequently the morning observations were fewer in number than might be desired. Nevertheless the two dozen or so times when I did manage to get up before dawn furnished proof that, as a rule, the species which continued feeding later than the others were also the first to begin. In short, that some birds seem to need the food than do others. It also appeared that the correlation of the Tit feeding times usually, though not without exception, was repeated in the morning.

I will discuss this point at once. The accompanying diagrams which indicate the relative times of feeding on separate groups of days in January, February and March show what this Tit feeding-relationship is. To take the evening-feeding first, diagrams C, D, E and F show that on the days represented the Great Tits, indicated by round spots and solid lines, *invariably* ceased feeding some time before the Blue Tits, whose cessations are represented by square spots and dotted lines. The double squares, it should be

SOME TYPICAL FEEDING TIMES OF TITS

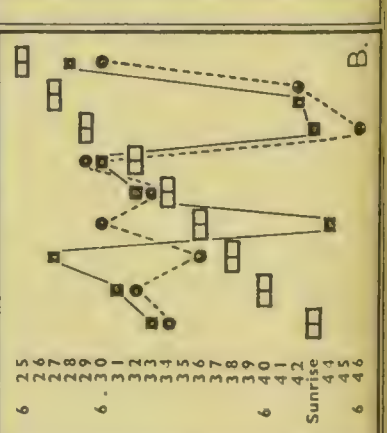
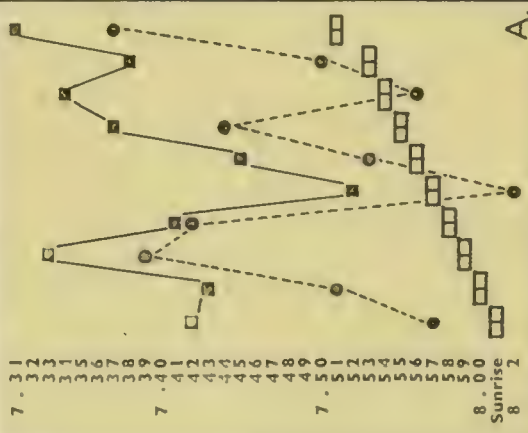
 BLUE TITS ●-----● GREAT TITS SUNRISE AND SUNSET

MORNING FEEDING.

A. January.
 B. March.

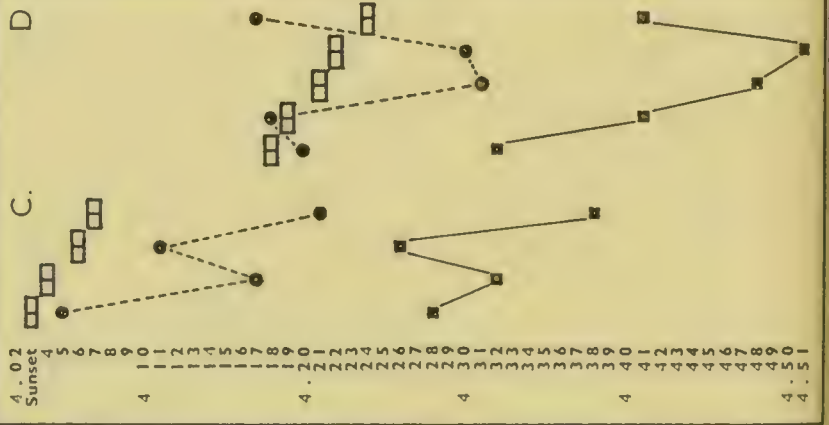
EVENING FEEDING.

C & D. January.
 E. February.
 F. March.

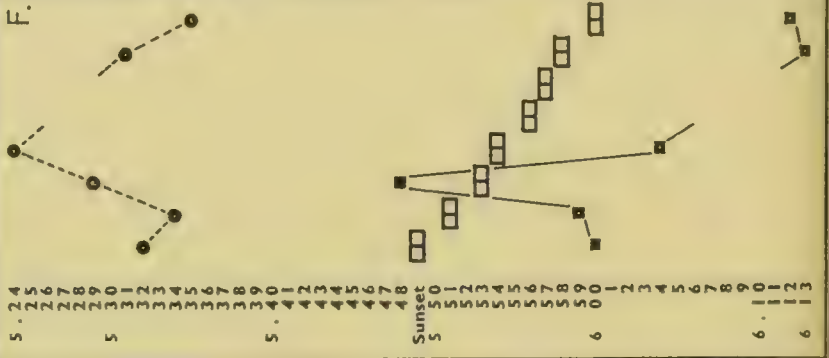


D.

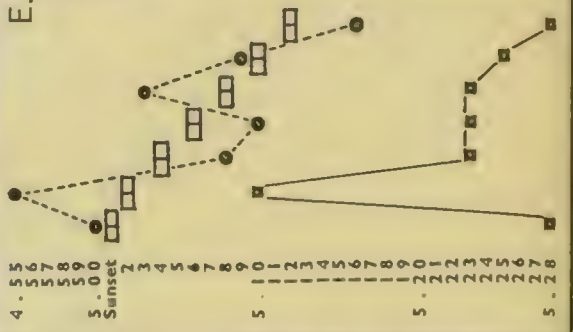
C.



F.



E.



l, mark the times of sunset and sunrise on the different
s.
The doings at the other end of the day are shown in diagrams
nd B. It will be seen from these that in January the Blue
s *always* began to feed before the Great Tits, but that in
rch there were lapses of a minute or two from this custom,
on one occasion, diagram B, a Great Tit unexpectedly
first in the field by no less than fifteen minutes. As a
sible explanation of this aberration it may be said that this
icular week in March happened to be the coldest in the
ter, severe frost occurring on most nights.
Why Blue Tits behave in this way must be left to con-
ure. It is possible that being a smaller and weaker
ies subject to the constant experience of being driven from
food by the stronger Great Tits, they rise early and stay
in order to secure periods of unmolested feeding, though
here is always plenty of food for all, this would not seem
ssary. Why the larger bird also does not feed as long as
sible is not obvious unless it is that it requires less food.
he two species fed on different food and the Great Tit ate
gs having higher nutritive qualities this would be under-
dable, but as both eat identical food it is curious to find,
re do by taking nine evening cessations in January with
corresponding morning beginnings, that the longest
less night-periods of the Great Tits was 15 hours 52
utes, while the Blue Tits' longest time without food was
15 hours 20 minutes, the average foodless periods being
t 15 hours 16 minutes for the Great Tit and 14 hours
minutes for the Blue Tit.
he would expect the birds to take advantage of the in-
ing period of daylight in March, which was about 3 hours
minutes longer than in January, but it is interesting to
that neither species did so to the full, though both species
l feed for, approximately, 2 hours longer—Blue Tits
st 9 hours and Great Tits about $8\frac{1}{2}$ hours—in March than
January. There is, however, evidence of an attempt to
use the feeding time in the earlier month by beginning
er and staying later in relation to sunrise and sunset,
whereas in March the Blue Tits' times of beginning
aged only 6.8 minutes before sunrise, in January they
ed 16.9 minutes before. The same may be said of the Great
for they began in March 4.9 minutes before sunrise,
in January they commenced 10 minutes before. Similarly
e end of the day it was observed that in March the Blue
stayed 16.7 minutes after sunset while in January they

continued until 24 minutes after, and that the Great Tits stayed 4 minutes after sunset in March and 7.6 minutes after in January, all these figures being averages.

The diagrams will make clear another point, that being the strange correlation between the terminal feeding times of the Great and Blue Tits on each day. It will be seen that, almost without exception, if the Great Tits ceased feeding early the Blue Tits did the same, and if the Great Tits continued later the Blue Tits followed suit. It is evident that some influence affected both species at the same time, but as to what this influence is I am only prepared to make suggestions. Possibly it has to do with temperature or with humidity; barometric pressure may be the cause or strength of light. Unfortunately, I was unable to investigate accurately any of these possible causes; an attempt to use a thermometer disturbed the birds; the light was so imperfect before sunrise and after sunset that my actinometer failed to register its intensity. I had, therefore, to fall back on noting the atmospheric conditions in general terms such as "Sky overcast, light dull, slight frost, strong northerly wind," and this I did each day to find that nothing in my notes, except possibly the frost already referred to in connexion with the late beginning of the Blue Tits, furnished any clue to the variations in the feeding times. One feature, probably connected with light intensity, may be mentioned. It will be noticed that the Great Tits ceased feeding in January and March round about sunset each day, and that the Blue Tits did not finish until some time after sunset. Yet, in February, for some unknown reason, the Great Tits stopped some considerable time before sunset and that the only occasion the Blue Tits did this during the period covered by the observations was in the same month. Nothing in my weather notes suggests an explanation of this unusual irregularity.

So far I have referred to Tits only because their numbers and the frequency of their visits to the food provided enabled regular and accurate observations to be made. But other species visited the food constantly though not in the same numbers as the Tits. Of the feeding times of these something may now be said.

The Hedge-Sparrow and the Robin came to feed before dawn when the light was so bad that it was difficult to recognize them. The Robin quite commonly continued after all the others had gone and sometimes fed on into the dark.

It was noticed that certain species *seldom or never* began feeding before sunrise. And that some *always* finished some

before sunset. Of the former the Jay, Coal-Tit, Goldfinch and Spotted Flycatcher are examples, and of the latter, the Goldfinch, the Coal-Tit, House-Sparrow and Chaffinch.

Here is the order of time in which the different species were first to feed, the time given being the earliest morning and latest evening observed feeding of each species: Song-Thrush (*Turdus e. ericetorum*), 42 minutes before sunrise; Mistle-Thrush (*Turdus viscivorus*), 35 minutes before; Robin (*Erithacus rubecula*), 31 minutes; Barn-Owl (*Tyto*), 30 minutes; Blackbird (*Turdus merula*), 27 minutes; Wren (*Troglodytes troglodytes*), 27 minutes; Blue Tit, 27 minutes; Hedge-Sparrow (*Prunella modularis*), 24 minutes; Great Tit, 21 minutes; Sky-Lark (*Alauda arvensis*), 20 minutes; Marsh-Tit (*Parus palustris*), 19 minutes; Chaffinch (*Fringilla*), 14 minutes; House-Sparrow (*Passer domesticus*), 14 minutes; Nuthatch (*Sitta europæa*), 7 minutes; Kestrel (*Nico tinnunculus*), 5 minutes; and Starling (*Sturnus vulgaris*), 4 minutes. After sunrise species began feeding in the following order: Goldfinch (*Carduelis carduelis*), 8 minutes after; Coal-Tit (*Parus ater*), 10 minutes; Spotted Flycatcher (*Muscicapa striata*), 40 minutes.

The order in which feeding ceased at night was: Kestrel, 15 minutes before sunset; Coal-Tit, 15 minutes; House-Sparrow, 7 minutes; Chaffinch, 5 minutes; and Mistle-Thrush, 2 minutes. Nuthatch continued to feed until 7 minutes after sunset; Barn-Owl, 12 minutes after; Great Tit, 14 minutes; Marsh-Tit, 22 minutes; Hedge-Sparrow, 22 minutes; Blackbird, 29 minutes; Song-Thrush, 29 minutes; Blue Tit, 31 minutes; and Robin 33 minutes.

In offering these observations it must be understood that they were all made from the windows of the house, and while there is no doubt that the visits of the Tits to the food stand, and probably those of Robin, House-Sparrow, Marsh-Tit and Coal-Tit were the actual beginnings and endings of their feeding, it is possible that the other species may have been feeding elsewhere before or after the occasions they were seen feeding from the house.

It is perhaps unnecessary to say that some of the birds listed above, Kestrel and Barn-Owl, for example, did not visit the bird tables but were observed feeding in the fields near the house.

RECOVERY OF MARKED BIRDS.

Carrion-Crow (*Corvus c. corone*).

RINGED AS NESTLINGS.

No.	Ringed.	Recovered.
RT.7932	Cobbinshaw (Midlothian), 2.6.34, for Midlothian Orn. Club.	Kirknewton (Midlothian), 26.3.35, by C. Jarvis.
RT.6704	Giggleswick (Yorks.), 14.5.33, by A. H. Eggeling.	3 m. away, —.4.35, by Capt. Hutton Croft.
RV.2460	Skipwith (Yorks.), 13.6.34, for Bootham Sch.	Melbourne (Yorks.), 27.4.35, by G. Long.

Rook (*Corvus f. frugilegus*).

RINGED AS FULL-GROWN.

(e) MOVED TO A DISTANCE AND RELEASED EXPERIMENTALLY.

RS.4660	Chipping Norton (Oxon.), transported to and released at Cambridge [70 m. E.N.E.], 18.2.31, by T. H. Harrison.	Where caught, Chipping Norton, 8.2.35, by W. B. Alexander.
RR.8816	Chipping Norton (Oxon.), transported to and released at Oxford [19 m. S.E.], 24.2.33, by Oxford Orn. Soc.	Thorpe Mandeville (Northants.), 24.2.35, by J. N. Gibbard.

Starling (*Sturnus v. vulgaris*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

FH.498	Aghalee (Antrim), 23.5.34, by T. Kerr.	Markethill (Armagh), 15.4.35, by S. Macloskie.
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(b) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
GL.706	Hillswick, Shetland, 26.6.34, by W. J. Eggeling.	9.4.35.
GD.967	Penrith (Cumb.), 21.5.34, by H. J. Moon.	9.4.35.
FC.372	Ullswater (Westmor.), —.5.33, by H. J. Moon.	21.2.35.
FE.498	Ditto —.6.33.	25.2.35.
RR.6973	Kirkby Lonsdale (Westmor.), —.6.30, by H. J. Moon.	30.1.35.

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
U.5931	Scone Estate (Perth.), 27.12.29, by the Earl of Mansfield.	Balloch (Dumbarton), 28.3.35, by W. Edward.
FK.865	Kilbarchan (Renfrew.), 8.10.34, by F. J. Ramsay.	Newton Mearns (Renfrew.), 29.3.35, by M. Steven.
AP.6099	Barnard Castle (Durham), 28.2.33, for Barnard Castle Sch.	Stockton-on-Tees, 25.1.35, by R. Simpson.
GS.362	Wilmslow (Ches.), 8.11.34, by E. Cohen.	Gateacre (Lancs.), 15.3.35, by W. Hughes.
GL.875	Ditto 3.11.34	Leicester, 20.12.34, by R. Dewhirst.

Starling (*continued*).

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED—*continued*.*Ringed.**Recovered.*

293	Wilmslow (Ches.), 24.1.33, by E. Cohen.	Havbro, Jylland, Denmark, 1.4.35, by S. Hestback.
780	Alderley Edge (Ches.), 8.10.34, by E. Cohen.	Poynton (Ches.), 16.1.35, by H. Maw.
970	Great Budworth (Ches.), 1.9.34, by A. W. Boyd.	Middlewich (Ches.), 17.3.35, by Miss Yarwood.
513	Ditto 2.12.33	Astbury (Ches.), 13.12.34, by Miss Porter.
297	Ditto 26.2.33	Leigh (Lancs.), 14.12.34, by Miss Hodson.
258	Ditto 24.2.33	Asminderup, Sjælland, Denmark, 12.7.34, by I. Lieberkind.
609	Ditto 13.12.33	Slagelse, Sjælland, Denmark, 15.9.34, by C. C. Andersen.
518	Malvern (Worcs.), 25.2.34, by P. Morshead.	Melton Mowbray (Leics.), 20.1.35, by M. Booker.
118	Ditto 30.7.34	Stratford-on-Avon (Warwicks.), 15.5.35, by S. C. Rosser.
107	Ditto 14.3.34	Carrick-on-Suir (Tipperary), 3.2.35, by T. Kearney.
768	Ditto 9.2.35	Leeuwarden, Friesland, Holland, 15.3.35, by G. Junge.
932	Longhope (Glos.), 30.12.33, for Cheltenham Coll.	Ryeford (Hereford), 13.12.34, by Mr. Spencer.
74	Oxford, 4.1.34, by Oxford Orn. Soc.	Aylesbury (Bucks.), —.12.34, by G. Paxton.
377	Salthouse (Norfolk), 7.3.34, by R. M. Garnett.	Nakskov, Laaland, Denmark, 24.9.34, by C. C. Andersen.
40	Friern Barnet, London, 30.10.34, for Lond. N.H.S.	Bishops Stortford (Herts.), 13.12.34, by V. Trindall.
60	Ditto 28.10.33.	Amersfoort, Utrecht, Holland, —.2.35, by J. Bijl.
60	Addlestone (Surrey), 4.1.34, by P. Hollom.	Pyrford (Surrey), 11.2.35, by Mrs. Barrett.
28	Winchelsea (Sussex), 1.9.34, by P. Hollom.	Iden (Sussex), 9.2.35, by R. G. Williams.
58	Chichester (Sussex), 2.3.29, by R. Carlyon-Britton.	Batetzkaya, Leningrad Region, Russia (58° 40' N., 30° 15' E.), 20.6.30, by V. Wuczeticz.
60	Seaton (Devon.), 18.12.33, by A. Mayo.	Whitechurch (Dorset), 18.2.35, by H. Wort.
35	Ditto 2.12.33.	Henley-on-Thames (Oxon.), 16.12.34, by G. Hedges.

(d) RECOVERED WHERE RINGED.

31	Eton (Bucks.), 18.1.26, by A. Mayall.	26.4.35.
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Greenfinch (*Chloris ch. chloris*).

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
FM.303	Great Budworth (Ches.), 12.1.34, by A. W. Boyd.	Near Northwich (Ches.), 27.12.34, by J. Garner.
GN.445	Branscombe (Devon.), 8.1.35, by P. Morshead.	Near Exmouth (Devon.), 9.1.35, by Mrs. Pavey.
GN.473	Ditto 14.1.35.	Kilminster (Devon.), 3.2.35 by W. Long.
VF.413	Ditto 13.1.33	Salcombe Regis (Devon.), 11.4.35, by H. Clark.
FJ.765	Ditto 24.12.33.	Sidmouth (Devon.), 10.2.35 by H. Fooks.
FK.391	Ditto, Dec., 1934, and Jan., 1935.	Ditto, Feb., 1935.
FK.411		
GN.302		
GN.305		
GN.328		
GN.443		
GN.450		
GN.475		
GN.480		
GN.494		
GW.965	Totnes (Devon.), 27.2.35, by D. Lack.	Newton Abbot (Devon), 24.3.35, by H. Cox.

Bullfinch (*Pyrrhula p. nesa*).

RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

Shipley (C. Wontner-Smith).

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
GD.565	20.6.34	10.3.35	GD.597	22.6.34	Jul.
GD.582	23.6.34	5.9.34; 17.12.34			[Aug., Sep. [Dec., 19

Chaffinch (*Fringilla c. caelebs*).

GP332	Cumnock (Ayr), 2.8.34, young, by Lord Dumfries.	Where ringed, 3.5.35, ringer.
GD.635	Shipley (Yorks.), 2.9.34, ad., by C. Wontner-Smith.	Tenbury (Worcs.), 14.1. by H. Lees.
LJ.396	Hewell (Worcs.), 19.1.35, ad., by G. Charteris.	Chadwick (Worcs.), 24.4. by <i>Cage Birds</i> .

Brambling (*Fringilla montifringilla*).

MW.203	Moreton - in - Marsh (Glos.), 29.12.34, ad., by Hon. G. Charteris.	Newbould-on-Stour (Worcs.) 9.2.35, by P. Carr.
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Yellow Bunting (*Emberiza c. citrinella*).

LE.999	Branscombe (Devon.), 30.12.34, ad., by P. Morshead.	Sidmouth (Devon.), 31.12.34 by H. Fooks.
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Meadow-Pipit (*Anthus pratensis*).

Ringed.

Recovered.

- 777 Malvern (Wores.), 9.10.34, ad., Lit-et-Mixe (Landes),
by P. Morshead. France, 3.11.34, by A.
Chappellier.

Yellow Wagtail (*Motacilla f. rayi*).

- 20 Kendal (Westmor.), —.7.32, Casablanca, Morocco,
young, by H. J. Moon. 15.11.34, by M. Cadot.

Song-Thrush (*Turdus e. ericetorum*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

- 60 Dundee (Angus), 16.5.32, by Randalstown (Antrim).
E. C. Sharp. 6.1.35, by J. Cunningham.
67 Largo (Fife), 21.5.34, by A. H. Springfield (Fife), 18.1.35.
Eggeling. by D. Stewart.
88 Dolphinton (Peebles), 23.4.33, Cahir (Tipperary), 18.12.34,
for Rugby Sch. by J. Walsh.
50 Penrith (Cumb.), —.5.33, by Pulverbach (Salop), 7.3.35,
H. J. Moon. by S. Preece.
70 Carnforth (Lancs.), —.5.33, by Lisselton (Kerry), 13.2.35.
H. J. Moon. by D. Boland.
10 Melling (Lancs.), —.5.34, by Tunstall (Lancs.), 26.3.35,
H. J. Moon. by C. Lomax.
17 Mytton (Lancs.), 8.6.34, by Oswaldtwistle (Lancs.),
C. Oakes and E. Battersby. 18.5.35, by F. Carter.
21 Heslington (Yorks.), 25.5.33, Heworth (Yorks.), 1.2.35,
for Bootham Sch. by R. Baram.
14 Castle Howard (Yorks.), Beeston (Notts.), 10.5.35,
23.6.34, for Bootham Sch. by E. Peters.
6 Kelling (Norfolk), 28.4.31, by Lincoln, 7.2.35, by L. Bones.
R. M. Garnett.
7 Canterbury (Kent), 18.5.30, for Blean (Kent), 7.4.35, by
St. Edmund's Sch. S. Kingham.

(b) RECOVERED WHERE RINGED.

- 8 Ullswater (Cumb.), 16.5.34, by H. J. Moon. 2.4.35.
8 Ingleton (Yorks.), 8.6.34, by H. J. Moon. 23.2.35.
2 Bealings (Suffolk), 17.4.34, by A. Mayall. 27.4.35.

RINGED AS FULL-GROWN.

- 3 Wilmslow (Ches.), 23.2.35, by Altrincham (Ches.), 1.5.35,
E. Cohen. by W. Eaton.
7 Ascott - under - Wychwood Kingham (Oxon.), 20.3.35,
(Oxon.), 10.12.34, for Oxford by V. Bailey.
Orn. Soc.

Blackbird (*Turdus m. merula*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
FF.327	Glenorchard (Stirling.), 14.5.34, by J. Bartholomew.	Kenmare (Kerry), —.1.35. by D. Howick.
GL.192	Penrith (Cumb.), —.6.34, by H. J. Moon.	Skelton (Cumb.), 20.3.35. by ringer.
RR.3439	Ullswater (Cumb.), —.5.28, by H. J. Moon.	Sedbergh (Yorks.), —.2.35. by J. Mason.
GD.749	Ditto 12.5.34.	Tynron (Dumfries.), 5.4.35. by W. Gaskell.
GG.227	Ditto 24.5.34.	Swords (Dublin), 10.1.35. by M. Hely-Hutchinson.
FH.577	Wolsingham (Durham), 12.5.34, by R. Martinson.	Consett (Durham), 16.3.35. by W. B. Pattinson.

(b) RECOVERED WHERE RINGED.

FF.222	Glenorchard (Stirling), 4.6.33, by J. Bartholomew	16.2.35
EF.151	Inveresk (Midlothian), 5.6.33, by Mrs. Greenlees.	2.4.35
AP.2731	Penrith (Cumb.), —.5.32, by H. J. Moon.	26.3.35
S.8045	Ullswater (Cumb.), —.5.31, by H. J. Moon.	—.5.35
VF.272	Arnside (Westmor.), 27.4.34, by J. Barnes.	17.1.35
W.3658	Prestwich (Lancs.), 2.6.27, by G. Townsend.	—.4.35
BF.970	Wetherby (Yorks.), 21.5.33, for Bootham Sch.	10.4.35
FB.328	Heslington (Yorks.), 25.5.33, for Bootham Sch.	23.4.35
YF.457	Great Budworth (Ches.), 22.7.33, by A. W. Boyd.	16.12.34
XF.750	Stanway (Glos.), 1.5.33, by G. Charteris.	2.12.34
CF.536	Barn Elms Reservoir, London, 18.5.33, for L.N.H.S.	12.1.35
FA.164	Ewell (Surrey), 11.5.34, by R. S. Fitter.	18.4.35

RINGED AS FULL-GROWN.

GB.349	Ascott - under - Wychwood Nyborg, Fyen, Denmark (Oxon.), 8.12.34, for Oxford April, 1935, by N. Brorl Orn. Soc.
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Robin (*Erithacus r. melophilus*).

RINGED AS NESTLINGS.

MJ.52	Ullswater (Westmor.), 18.5.34, 2 miles away, 12.12.34, by H. J. Moon. ringer.
LA.38	Ditto 21.6.34. Where ringed, 7.1.35, ringer.
ML.326	Cumnor (Berks.), 18.5.34, for Eynsham (Oxon.), 27.4.35 Oxford Orn. Soc. by W. B. Alexander.

Dipper (*Cinclus c. gularis*).

AR.6170.	Glencorse (Midlothian), 22.5.34, Where ringed, 31.12.34, young, by D. K. Bryson. G. Howie.
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Swallow (*Hirundo r. rustica*).

MK.186	Langwathby (Cumb.), —.7.34, Portnahaven, Isle of Islay young, by H. J. Moon. 8.5.35, by Miss Anderson
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Little Owl (*Athene n. vidalii*).

	Ringed.	Recovered.
1538	Canterbury (Kent), 17.5.31, ad., for St. Edmund's Sch.	Where ringed, 2.5.35, by P. Pattenden.
1113	Guestling (Sussex), 14.5.32, ad., by B. T. Brooker.	Where ringed, 7.4.35, by T. Glazier.

Barn-Owl (*Tyto a. alba*).

9200	Skirwith (Cumb.), —.8.34, young, by H. J. Moon.	Melkinthorpe (Cumb.), 5.2.35, by J. Cowin.
8211	Pembroke, —.8.34, ad., by R. M. Lockley.	Penally (Pembs.), 22.2.35, by W. Henwood.

Kestrel (*Falco t. tinnunculus*).

2611	Elie (Fife.), 9.6.34, young, by W. J. Eggeling.	Montrose (Angus), 11.1.35, by G. Alexander.
2703	Mytton (Lancs.), 26.5.34, young, by C. Oakes and E. Battersby.	Whitewell (Yorks.), 19.3.35, by W. Gedney.
2029	Shipley (Yorks.), 16.6.34, young, by C. Wontner-Smith.	Richmond (Yorks.), —.9.34, by S. Marwood.

Sparrow-Hawk (*Accipiter n. nisus*).

325	Canterbury (Kent), 29.7.34, young, for St. Edmund's Sch.	Where ringed, 17.2.35, by ringer.
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Heron (*Ardea c. cinerea*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

72	Crofton (Cumb.), 20.6.34, by R. H. Brown.	River Petteril (Cumb.), 10.3.35, by F. Harrison.
77	Ditto 20.6.34.	Langholm (Dumfries.), —.3.35, by M. Scott.
42	Henley-on-Thames, 5.5.34, for Oxford Orn. Soc.	Coleshill (Warwicks.), 9.12.34, by W. Day.
61	Ditto 13.5.34.	Hampton-in-Arden (Warwicks.), 22.12.34, by A. Russell.
11	High Halstow (Kent), 19.5.34, by P. Hollom.	St. Mary's Loch (Selkirk), 6.5.35, by W. Everitt.
38	Beckley (Sussex), 5.5.34, by P. Hollom.	Where ringed, —.1.35. per <i>Shooting Times</i> .
34	Ditto 6.5.34.	Lydd (Kent), 17.1.35, by R. Burrowes.
67	Ditto 26.5.34.	Edenbridge (Kent), —.2.35, by S. Medhurst.
49	Ditto 6.5.34.	Mountnessing (Essex), 1.2.35, by W. Thew.
87	Ditto 27.5.34.	Cuvernille - par - Eu (Seine Inf.), France, 15.2.35, per <i>Chasseur Francais</i> .

(b) RECOVERED WHERE RINGED.

8	Henley-on-Thames, —.5.33, for Lt.-Col. Pollitt.	—.5.35.
37	Ditto 5.5.34, for Oxford Orn. Soc.	—.5.35.

(To be continued.)

NOTES

PIED WAGTAIL ROOST ON A LEICESTER BUILDING.

It is now known that a large number of Pied Wagtails (*Motacilla a. yarrellii*) have for the past two years used the glass roof of the branch Post Office in Campbell Street, Leicester, as their winter roosting quarters. The Post Office in question is less than a hundred yards from the London Midland and Scottish Railway station and the main street, and six hundred yards from the centre of the City of Leicester.

The glass roof on which the birds roost consists of three gables, and the whole roof is overlooked on all four sides by the windows of a corridor at the same level. I first saw the birds at roost in February, 1935, when they were at full strength, numbering from four to six hundred. It was an amazing spectacle. The tops of the roof gables and surrounding window ledges were lined with Wagtails, and dense masses of them squatting flat on the sloping panes of glass, quite undisturbed by frequent and sudden illumination from, or persons appearing at, the aforementioned windows.

During March and April, by the courtesy of the Post Office officials, I have been able to keep the roof under constant observation and on some occasions while the birds were coming in to roost. They arrived in small groups, generally three or four, in most cases dropping into the vicinity of the roof from a considerable height, thus giving little or no indication of the direction from which they had come. On one occasion only, from a point about three hundred yards distant, did I observe a flight of Wagtails (five in all) making in the direction of the roost.

On April 18th I received reliable information from an interested Post Office official that the birds were still in occupation, but in slightly reduced numbers.

On May 1st I visited the roost myself at 9.15, shortly after dusk, expecting to find the roost deserted, but was surprised that I was able to count upwards of two hundred roosting Wagtails. The roost was still occupied on May 8th, but on May 25th it was deserted.

W. E. MAYES,
Leicester Museum.



Part of Pied Wagtail roost on a Leicester Post Office roof
(other more crowded parts were not accessible).
(*Photographed by the "Leicester Mercury"*).

PIED WAGTAIL ROOST IN GORSE.

INFORMATION as to the sites of winter roosts of the Pied Wagtail (*Motacilla a. yarrellii*) is curiously scanty, and it might well be suggested here that other observers come forward with information as to sites other than reed-beds, which are well known as favourite roosting-places of Pied and Yellow (*Motacilla f. rayi*) Wagtails. The Pied Wagtail tree-roost in the centre of Dublin has been described in *British Birds*, Vol. XXIV., pp. 26-8, and Vol. XXVI., p. 93, and in *Irish Nat. Jour.* V., pp. 162-3, while one in a rhododendron, recorded in the *Journal of the Derbyshire Arch. & Nat. Hist. Soc.*, 1933, was referred to in *B.B.*, XXVIII., p. 32.

On January 12th, 1935, I found a roost of between 600 and 1,000 Pied Wagtails in a thick growth of gorse (*Ulex europæus*) in a rushy field near Martletwy, Pembrokeshire. The gorse was between 4 feet and 6 feet high and situated close to a hedge bordering a second-class country road. The nearest buildings were 120 yards away and the district is rather remote and unfrequented.

The birds assembled soon after sunset and their great numbers on the road near the roost first attracted my attention. They roosted well down among the prickly shoots, so that a flashlight photograph would have been almost impossible. The roost was still occupied in force up to March 8th, when I had to discontinue my observations. R. M. LOCKLEY.

BLUE TIT NESTING IN KINGFISHERS'
NESTING HOLE.

ON May 26th, 1935, I found a Blue Tit (*Parus c. obscurus*) sitting on eggs in an unused Kingfishers' burrow on the River Kittoch, Lanarkshire. The bank is situated in a very exposed position on the outskirts of a small plantation and probably no better nesting site was available as all the trees were small conifers.

The nest was placed about three or four inches from the mouth of the hole, and contained ten eggs. The hen Blue Tit could be quite easily seen without the aid of a torch.

I believe this is the first record of a Blue Tit nesting in an old Kingfisher's nest hole, though its relative, the Great Tit (*Parus m. newtoni*), has been known to do so on several occasions.

PHILIP A. CLANCEY.

IRREGULAR LAYING OF BLACKCAP.

ON April 29th, 1935, a bird was found sitting on three eggs on a branch of a holly at a height of four feet in the grounds of

Surbiton County School. It was shown to me when term started on May 1st and I identified it as a hen Blackcap (*Sylvia a. atricapilla*).

She was sitting so closely that she had to be pushed off the nest and then stood within a few inches. I kept a daily watch on her and a fourth egg was laid between 10 a.m. Friday and 2.30 p.m. Saturday, May 4th.

Unfortunately three of the eggs were taken, one on Saturday, May 11th, and two on Sunday, May 12th, or Monday, May 13th, and she deserted. The remaining egg was found to be infertile.

The cock bird was seen and heard near by but was not seen on the nest.

J. E. ROBERTS.

PROBABLE BREEDING OF NIGHTINGALES IN DENBIGHSHIRE.

LATE in the summer of 1934 I was informed that a Nightingale (*Luscinia m. megarhyncha*) had been singing in a certain wood not far from the town of Denbigh, and that it had done so for at least two seasons. This year I heard that it was again singing in the same spot. On May 13th I was there at 9 p.m. It was a cold evening and I waited nearly an hour before I heard the quite unmistakable commencing notes of a Nightingale, but it was all over in a second or two. On May 20th I went to try and find the presumed nest. The bird was singing fitfully (I saw it once) over a range of a hundred yards or so and I at once realized that the finding of the nest, if any, would be a most difficult proposition. There was a very large area of two feet high sloe bush interspersed with brambles, etc. There was also a pond and an irrigation ditch as well; in fact everything a breeding Nightingale could possibly desire. Unfortunately I am unable to investigate further, but it seems to me a certainty that if a Nightingale appears in the same spot and in all ways suitable for the species, for *three* seasons running at least, it must be breeding.

W. M. CONGREVE.

GOLDEN EAGLE MATING DURING INCUBATION.

I WAS watching near an eyrie of a Golden Eagle (*Aquila ch. chrysaetus*) on April 29th, 1935. The female had been sitting some weeks to my knowledge—indeed, the eggs were near hatching, I think. I saw the male, and a pair of Ravens made such an outcry chasing him that the female came off her nest. There was a great aerial display—two Eagles and two Ravens—and after it the Eagles alighted on a grassy

knoll about their rock and stood awhile. Then the male flew across to the female and mating took place.

The female then at once returned to her eyrie.

SETON GORDON.

THE GOLDENEYE OF KENSINGTON GARDENS.

THE Goldeneye (*Bucephala c. clangula*) which appeared on the Round Pond, Kensington Gardens, on October 19th, 1934 (*B.B.*, Vol. XXVIII., p. 292), stayed there till May 18th, 1935, when it came to an untimely and very curious end. It arrived in juvenile dress, but could soon be recognized as a male; when it died it was far advanced towards adult plumage. I saw no change in its colour till February 11th, when a few small white feathers of the loreal patch were visible; the patch was practically complete by March 2nd. The irides were dull yellowish brown (not "bright yellow", see *A Practical Handbook*); they began to turn yellow early in April. At the beginning of May the bird could be seen displaying to female Mallards and Tufted Ducks, but neither they nor their attendant drakes took any notice of these overtures.

These displays were exactly like those of the adult male Goldeneye, the head being thrown back till the crown nearly touched the base of the tail, and then thrown forwards and upwards with a jerk and water being kicked up behind; but the action was performed in silence, whereas the adult bird accompanies it with a low, harsh, double croak.

On the afternoon of May 18th the Mallards on the Pond apparently thought that the Goldeneye's amatory advances were going too far. The keeper then on duty at the Round Pond tells me that he saw a commotion on the middle of the water. Half a dozen Mallards had attacked the Goldeneye, which tried to escape by diving. Other Mallards joined in, till there were about a dozen drakes driving their victim's head under water each time it appeared on the surface, until, in a dying condition, it reached the shore, where it expired a moment or two after the keeper rescued it.

During the whole of its seven months' residence in Kensington Gardens its relations with the other ducks had been most amicable. It was in beautiful condition, and being the only example of the species known to have occurred in Inner London I took it to the Natural History Museum. Mr. N. B. Kinnear informs me that the stomach was empty. It would have been interesting to know upon what it had been feeding, for Mr. A. H. Bishop said it was the fattest duck he had ever skinned. Its weight was 2 lbs. 4½ ozs. A. HOLTE MACPHERSON.

INJURY-FEIGNING MOVEMENTS OF
RINGED PLOVER.

THE injury-feigning movements of the Ringed Plover (*Charadrius h. hiaticula*) are no doubt known universally. I have not, however, seen them described in detail, so venture to do so.

While standing about a foot away from one of three crouching nestlings on the shingle at Llandulas, N. Wales, on May 28th, 1935, I noticed that the parent performed a definite series of actions which were constantly repeated, each time in the same order. When put up the bird alighted a few yards away from the young ones; after a short run the tail was depressed and deflected to the right. It was then spread, the head lowered and the wings shuffled, the run continuing without a break. Then, with head and tail depressed, the left wing stiff and the right wing shuffled, the bird continued to flutter awkwardly along the ground. This movement was followed by one in which both wings were trailed, the bird progressing over the shingle on breast and tail. The bird then stopped, and crouching down on its right side, stretched up the left wing to its full extent; this position was held for a few seconds, after which the bird flew back and the cycle recommenced. The alarm cry "Quee" "Quee" was repeated continually.

The nest is bounded on three sides by shingle, on one by turf; these injury-feigning runs took place in all directions over the shingle, but not over the turf. M. MITCHELL.

MOOR-HEN USING WINGS UNDER WATER.

IN May, 1935, I was watching for trout in a deep pool of the Usk river, and a disturbed Moor-Hen (*Gallinula ch. chloropus*) swam by me several feet under clear water. I was on a high, almost vertical, bank above it, and saw its movements perfectly. It was swimming with regular movements of wings and legs (about one stroke per second). The wings were extended fully at the elbow but remained bent at the carpus, and the neck straight outstretched. The wings were then brought right into the side from this position and the legs thrust together and straight out behind. It was obviously a very effective action and the bird moved fast until it reached a bush which hid it. Actually I have never seen any bird move wings under water except the Black Guillemot, which is, of course, well known to do so, but I mention this bird to say that the Moor-Hen had an equally vigorous, though, if I

recollect rightly, less frequent stroke. The water was so clear that I could see every detail to the red bill of the bird.

T. LEWIS.

INCUBATION BY BOTH COCK AND HEN COMMON PARTRIDGE.

THE accompanying photograph (Plate 3) illustrates what I believe to be a unique record, both male and female Partridges (*Perdix p. perdix*) on the nest together. In *British Birds* (Kirkman and Jourdain, 1930) it is stated that incubation is by the hen alone, and other reliable bird books substantiate this claim. My own observations confirm this, generally speaking, but this photograph with both birds on the nest together shows that the male bird—facing the camera—sometimes comes to and on the nest when the chicks are hatching out, though he may not definitely help with the incubating.

I found the nest in June (1934), with twenty eggs, under the sunny side of a wall among the foothills of the West Riding of Yorkshire. The hen bird sat confidently while a hide was erected five or six feet away, and even though stakes were driven into the ground near her she did not move. When I came to occupy the hide it was a different matter altogether. She went off into the corn immediately the grass about her was touched.

This Partridge seemed to have an uncanny knowledge of the presence of anyone in the hide, even though elaborate precautions were taken to impress her otherwise. Though absolute stillness was preserved for hours she would not face the hide until it was vacated. Then she always returned at once.

At last the day arrived when the eggs began to chip, and, determining not to be outdone, I spent several periods before the nest, but all of no avail. Late that night I left the camera in position in the hide and decided to try again early next morning. As soon as the light made photography possible, I climbed the wall some twenty yards behind the hide, and crawled along into it on my hands and knees, knowing this would be absolutely my last chance.

Imagine my extreme surprise when I peered through the fabric and saw both Partridges sitting head to tail on the nest! They stayed long enough to allow me to make half a dozen exposures. Then the cock rose and went off into the corn; the hen followed him, clucking quietly almost like a bantam, and out of the nest poured a stream of golden chicks.



A pair of Common Partridges on the Nest
(*Photographed by Rev. Percival F. Bywater.*)

Commenting on this incident, Capt. H. B. Moser, of the Knebworth Game Research Estate, says: "In my experience, when the eggs are chipping, the hen calls her mate to her and he settles down in the nest with her, as so clearly illustrated in your photograph. Directly the first half-dozen chicks have hatched off and have sufficiently dried, the hen bird passes them over to the cock, who takes them with him from the nest and settles down with them a few feet away. There he waits until the hen bird has hatched and dried off the remainder of the clutch, when both birds move off together with the chicks".

In this way the cock Partridge reveals a devotion both to the eggs and to the young brood equal to that of his mate.

PERCIVAL F. BYWATER.

FULMAR PETREL'S BREEDING STATUS IN YORKSHIRE.—Mr. W. R. Taylor informs us that the Fulmar Petrel (*Fulmarus glacialis*), well known to be common on the Flamborough Headland from Speeton to Bempton, is extending its range southwards along the (lower) cliffs as far as Sewerby, one mile from Bridlington. Mr. Taylor saw several birds frequenting the cliffs there on May 4th, 1935, and at least two pairs looked as if they were settling down to nest. He also noted Fulmars at Ravenscar, north of Scarborough, on this date.

ICELAND GULL IN YORKSHIRE.—Mr. W. R. Taylor informs us that he watched an immature Iceland Gull (*Larus leucophaea*) on several occasions from May 2nd to 5th, 1935, at Bridlington.

ABNORMAL VARIETY OF KITTIWAKE.—Mr. B. N. Reckitt informs us that on April 28th, 1935, when watching one of the colonies of Kittiwakes (*Rissa t. tridactyla*) on Bempton Cliff, Yorkshire, he saw an adult bird in which the usual black tips and grey on the wings were absent, and instead there was a small patch of reddish-brown on each wing, but otherwise the bird was pure white. The beak was the usual pale yellow and the legs black.

RAZORBILL INLAND IN ESSEX.—Mr. E. T. Nicholson informs us that on May 4th, 1935, he picked up dead the Razorbill (*Alca torda*) which had been observed on the Banbury Reservoir, Walthamstow, since November 11th, 1934 (*antea*, Vol. XXVIII., p. 313). The body has been pathologically examined by Dr. G. Carmichael Low, who found it to be an adult female with no sign of disease or injury nor presence

of any parasites (*cf.*, Vol. XXVIII., pp. 188, 245). It is interesting to find that the bird was able to maintain itself for so long on an inland water.

LARGE CLUTCH OF MOORHEN'S EGGS.—Mr. Philip A. Clancey informs us that while searching a large reed bed on Bonnyton Moor, Renfrewshire, on May 11th, 1935, he came upon the nest of a Moorhen (*Gallinula ch. chloropus*) containing fifteen eggs. The eggs were too varied in ground colour and markings for Mr. Clancey to say whether they had been laid by two hens or not.

QUAIL IN YORKSHIRE IN WINTER.—Mr. C. F. Procter states (*Nat.*, 1935, p. 142) that several instances of Quail (*Coturnix coturnix*) last winter were brought to his notice, and particularly mentions a party of six at Aislaby, near Whitby, on December 8th, 1934.

REVIEWS

The Birds of Midlothian. By J. Kirke Nash, L.D.S.R.C.S.E. With 4 Plates and a Map. (H. F. & G. Witherby.) 21s. net.

WE have known the Scotch river faunal system, represented by the well-known works of J. A. Harvie-Brown and his collaborators, described as being more philosophical than the English county method. We have the utmost respect for these Scotch works and we believe that they will always stand out as landmarks in our ornithological literature. One difficulty with the Scotch system is to know where to draw the dividing lines between the various areas, and thus it is not easy to show that the whole country has been fully dealt with. We are strongly of the opinion that the county method is the most effective way of surveying ornithologically the British Isles. We consider that this holds good even from the philosophical aspect, and we suppose this to mean much the same thing as the ecological aspect, for the reason that the county system is much more intensive, and it is only by an intimate survey that we can consider the relation of birds to their surroundings. It would seem that the county system is making progress in North Britain and we hope that the day may come when no shire will be without its ornithology. As a contribution we have already Turnbull's *Birds of East Lothian* (1867); Gray and Anderson's *Birds of Ayrshire and Wigtownshire* (1869); Saxby's *Birds of Shetland* (1874); Muirhead's *Birds of Berwickshire* (1889-95); Gladstone's *Birds of Dumfriesshire* (1910); Paton and Pike's *Birds of Ayrshire* (1929), and the work now under consideration, which we welcome if for no other reason than that it advances this method of survey.

The book was completed in the spring of 1933, a short time, we regret to say, before the death of the author, whose daughter, Miss D. Kirke Nash, was responsible for its publication and who also added the preface. The reviewer has not considered additions, such as the nomenclature, made after the death of the author. An important feature of the work are the notes of the late Mr. William Evans, which were placed at the author's disposal by Miss E. Evans. From the eight pages of

introduction we learn that Midlothian is compared with a boomerang with the convexity facing to the north, where it is bounded by the Firth of Forth, the coastline being twelve miles in extent. The physical features are said to show much diversity, as the ground rises gradually from the coast and culminates in the Pentland and Moorfoot Hills, which respectively rise to 1,898 and 2,136 feet. There are few natural lochs but there is a number of artificial lakes in the hills, the most attractive to the naturalist being that of Threipmuir. Most of the rivers rise in the Pentlands and Moorfoots and with one exception flow into the Forth. The coast is said to have little attraction for waders as it is too much commercialized. The county includes two islands, Cramond Island and Inchmickery, the latter being a breeding ground of Terns. A tribute is paid to the late Mr. W. Evans, who is described as the greatest Scottish field-naturalist of his day. The introduction is of much interest but it tells us too little about birds. Chapters on ecology and migration are essential parts of an up-to-date county ornithology but neither of these subjects has been touched. A county with such features as hills rising to about two thousand feet, a coast and two islands, to say nothing of the intermediate levels, would seem to lend itself to a consideration along ecological lines. It is stated that the county receives the impress of the migration observed at the Isle of May and we know that there are ringing recoveries affecting the county so that there is material for a chapter on this subject. The author does not say how many forms he admits but we find by counting that he mentions 217. He does not indicate by the use of square brackets or other means whether he is dissatisfied with the evidence supporting any birds. The Red-throated Pipit is included on the strength of a note of Mr. W. Evans. Mr Nash writes of this: "Mr. Evans, with characteristic caution, has placed this note in square brackets, etc.", but we are not told the opinion of the author of the *Birds of Midlothian*. An unfortunate feature of the book is the large amount of matter which has no relation to the county. On the other hand, the description of the status of the species should have been fuller, indicating changes which may have occurred. Mr. N. B. Kinnear reminds us of the return of the Dipper and the Kingfisher to the lower course of the Water of Leith, he having seen them about 1911. This resulted from the purification of the stream about forty years ago. We feel that there must be other observers in the county whose work could have been used in this direction. Among the birds which are stated to have decreased we notice the Raven, which nested in 1917, the Jay, which is said to be a thing of the past although it was once a well-known resident, the Martin, Corncrake, Black Grouse and Partridge. Birds which have increased are the Tree-Sparrow, Eider Duck, Great Crested Grebe, Stock-Dove and Woodcock. The chapter on the Rook is of much interest. As a result of a census of the rookeries of Greater Edinburgh taken in 1921, and repeated in 1928, it is shown that the number of nests has increased from 1,545 to 2,273. The destruction of a small plantation of Scots pines on Cramond Island is attributed to a Starling roost, which is said to have contained about 12,000 birds, about 1900. The irruption of Mealy Redpolls in 1910 must have been remarkable. In two or three weeks, from October 22nd, not less than 2,000 Redpolls, of which eighty or ninety per cent. were Mealies, were brought into Edinburgh. Points of interest are an account of the nesting of the Swift, by Mr. D. Hamilton, the attempted nesting of the Bee-eater near Musselburgh in 1920, and the nesting of the White Stork on St. Giles' Cathedral in 1916. There is

no heronry in the county although occasional nests are found. The Pink-footed is the only regular grey Goose. We are informed that the Black-necked Grebe bred in 1930, 1931 and 1932, and probably in 1929. We note with satisfaction that the Common Terns are nesting again on Inchmickery, from which they were driven during the war, and also that the Sandwich Tern has nested on this islet. Midlothian has five Black-headed Gulleries, which are of old foundation, and have inland situations. Following the systematic list a chapter is devoted to bird-life in special areas, but these could have been dealt with much more suitably in a chapter on the features of the county and placed in the introduction. Only one species, the Blackbird, is described as having been affected by abnormal plumage. The bibliography includes 44 items, but we have no means of ascertaining if an adequate search of the literature has been made. It would have been much more helpful if the titles of the various papers, and not merely the title of the magazine, had been given. The author does not appear to have consulted *A Geographical Bibliography of British Ornithology*. Although this work in places is admittedly incomplete it will have brought to notice items which have been neglected. The printers call our attention to an error in the index, from page 288 to end one must be deducted, that is to say 288 must be read as 287 and so on. The book is illustrated with four good and not unsuitable photographs and a small map is inserted.

We had looked forward to the publication of this work with much interest, but it is to us a great disappointment. The author does not seem to have envisaged what demands are made on the county ornithologist of to-day. It is clear that a great amount of searching of literature and field-observation remain to be done before we have a satisfactory account of the birds of Midlothian. Few counties are so well favoured as to have a society devoted to ornithology and we recommend to the Midlothian Ornithological Club the task of completing the survey of the birds of the shire. A series of papers in the *Scottish Naturalist* would form a useful foundation.

The book has been published as a tribute to the memory of the author by his relatives and friends. The work entailed a great amount of labour and we associate ourselves sympathetically with this tribute to a fellow ornithologist.—W.E.G.

"On the Habits and Distribution of Birds in the North Atlantic",
By V. C. Wynne-Edwards. *Proc. Boston Soc. of Natural History*.
Vol 40, No. 4, pp. 233-346. January, 1935.

DURING the past few years an increasing number of short papers has dealt with bird observations in the North Atlantic, but their fragmentary nature has brought out plainly the need for something more comprehensive. Although seabirds are so much fewer in species and in numbers, and so much more simple in their distribution than those of the land, there has not been available any account which would show, at least for the familiar waters of the North Atlantic, what species were to be met with, and in what numbers, at different seasons and in different zones.

Between May and September, 1933, Mr. Wynne-Edwards undertook eight consecutive trans-Atlantic passages, during which he passed and repassed the same areas of the ocean, making all the time a series of intensive observations in transect form from the Gulf of St. Lawrence to the English Channel. These transects gave him an insight into the

distribution and migrations of North Atlantic birds which was enormously reinforced by a very thorough examination of nearly a hundred and fifty published references and some further unpublished material. As a result he has been able to produce the first coherent and scientific survey of the subject as a whole. He is to be congratulated upon a solid and significant piece of work, which is bound to form the basis for any future study.

Ornithological papers which can fairly be said to revolutionize their subjects are not particularly frequent, but this is one of them, and its grasp and maturity show an advance over the writer's previous work which raises the greatest expectations for his future output.

The general picture which emerges from his review is something like this. Starting from the coast on either side and disregarding waders which are tied to the shore itself, there are three fairly well-defined communities of North Atlantic birds—inshore, offshore and pelagic. The inshore community includes Cormorants, sea-ducks, the smaller gulls (except Kittiwake), and during the breeding-season Terns. This community extends from highwater mark to a maximum of four or five miles out to sea, and all its birds at times habitually frequent fresh water, sleep ashore, and often breed inland. The offshore community coincides in range with the commercial fishing grounds, and extends out to the continental edge. Its typical birds are the Gannet, the Herring- and Lesser Black-backed Gulls, and all the Auks except the Little Auk (which is an ice-bird, cutting across the communities). The pelagic community begins as a rule at about the 100 fathom line, and it includes the true oceanic forms—Kittiwake, Fulmar and other Petrels and Shearwaters, and at certain seasons Skuas and Phalaropes.

Pelagic bird life, like bird life on land, is dependent on the abundance of food supplies—in this case mainly plankton. Three of the outstanding pelagic birds of the North Atlantic breed in the southern hemisphere and "winter" in northern waters during the northern summer. The one with the most northerly range is the Great Shearwater (*Puffinus gravis*), which in June pushes well up Davis Strait, crossing latitude 60° N. in Greenland, Iceland and Faroe waters. Apparently the whole of the large flocks come up the western part of the Atlantic, but the greater number have drifted by the end of August over to the north-east part of the ocean, and their return migration during September and October takes place down the European-African side, although a minority retreat simultaneously by the way that they came. During August there are few Great Shearwaters below the fiftieth parallel, where they are replaced by Mediterranean Shearwaters (*P. kuhlii*), which breed in southern European and north African waters and spread out across the Atlantic immediately afterwards, during August and September, overlapping with *P. gravis* off Cape Cod. The two other southern hemisphere species, the Sooty Shearwater (*P. griseus*) and Wilson's Petrel (*Oceanites oceanicus*) are a good deal less abundant; like *P. gravis* both come up the Gulf Stream during our northern spring, appearing first in American and lingering latest in European and African waters. The Fulmar (*Fulmarus g. glacialis*), the most plentiful pelagic species, does not extend in summer much below 50° N. except on the American side; in winter it pushes below 40° N., almost reaching the Azores. A certain number of Manx Shearwaters (*P. puffinus*) occur far from land in the North Atlantic, but the great majority are found within 200 miles of the European coasts. Leach's Petrel (*Oceanodroma l. leucorrhoa*) on the other hand is much more numerous on the American than the European side; like the Fulmar it appears

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CONTENTS OF NUMBER 3, VOL. XXIX., AUGUST 1, 1935.

	PAGE
Notes from the Isle of Man, 1933 and 1934. By P. G. Ralfe	70
Recovery of Marked Birds, II.	73
Notes:—	
Roost of Twites in Outer Hebrides (Rev. J. M. McWilliam)	78
A Great Tit Triangle (G. B. Gooch)	78
Three Long-tailed Tits at One Nest (Dr. P. Vernon Dodd)	80
Ten Willow-Warbler returning to Nest in Same Place (M. Philips Price)	80
Blackbird's Nest with eight Eggs (Miss A. Hibbert Ware)	81
Census of Nightingales in Gloucestershire (M. Philips Price)	81
Common Buzzards in Surrey (H. E. Pounds)	83
Ten-Harriers in Sussex and Kent (N. F. Ticehurst)	83
Poobill in Sussex and Kent (N. F. Ticehurst)	84
Grey Lag-Geese in Kent (N. F. Ticehurst)	84
Early Nesting of Sheld-Duck in Kent and Sussex (N. F. Ticehurst)	85
Long-tailed Duck inland in Cheshire (A. W. Boyd)	85
Island Redshank in Lancashire (Dr. R. A. H. Coombes)	86
Sooty Terns seen in Dorset (Col. C. Saunders)	86
Notes:—	
Migration of Crossbills. Scarce Birds in Caithness. Red-backed Shrike Killing Adult Linnet. The Race of the Breeding Song-Thrush in Shetland. Green Woodpecker in West Lothian. Dark-breasted Barn-Owls in Orkney and Isle of May. Peregrine Falcon in Surrey. Ruddy Sheld-Duck in Cheshire. Shoveler in Shetland. Red-necked Phalarope in Merionethshire. Great Snipe in Scotland. Common Tern in Shropshire. Arctic Skua reported Breeding in West Inverness-shire. Quail in Herefordshire and Shropshire. Ivory-Gull in Elgin. Kittiwakes Nesting on a Building.	87
Notes:—	
Scarcity of Migrants (H. E. Forrest)	89
Regular Feeding-time of a Marsh-Tit (Miss A. Hibbert Ware)	90
Water-Catchers and Limpets (G. M. Spooner and H. B. Moore)	90
Notes:—	
The Nature of a Bird's World. By Eliot Howard	91



NOTES FROM THE ISLE OF MAN, 1933 AND 1934.

BY

P. G. RALFE.

REPORTS from the Point of Ayre Light for 1933, and the Chickens for 1933 and 1934, do not show a very large amount of migration. In mid-April and May, and again in the autumn of 1933, there were many Wheatears at the Chickens. On October 19th and 22nd, and again on November 19th, 20th and 21st, a good many birds, mostly species of Thrush, visited the lights. In 1934 the movements at the Chickens appeared to centre on the middle of February (Starlings and Thrush sp.); the beginning of April (Wheatears and Starlings); and the early days of November (Thrush sp. and Starlings). At the Point of Ayre very little was seen in this latter year of migrants; "the birds," says Mr. MacRae, "have completely deserted this place". But he notes many sea-birds covered with oil and dying on the beach.

Wheatears arrived March 17th and 12th respectively, the Chiffchaff March 22nd and 23rd, Willow Warbler April 1st and 6th, Sand-Martin April 2nd and March 28th, Swallow April 6th and 16th, Corncrake April 17th and 30th, Sedge-Warbler April 21st and 30th, Swift April 28th and May 7th. The Cuckoo, in 1933, is first reported April 14th; in 1934, Mr. H. M. Rogers heard one on March 31st, and the next report was on April 19th.

Swallows were frequently seen in November, especially in 1934, when the last date was 24th.

Immigration of Lapwings took place on a large scale both years in January.

Colonel Madoc thinks that 1934 was a very good year for waders, but that warblers were less numerous than usual.

The winter of 1934-5 was specially rich in Northern birds (see Long-tailed Duck, Eider, Glaucous and Iceland Gulls, and Little Auk).

Temminck's Stint and the Dusky Redshank, reported as "sight" records by Colonel Madoc in 1934, are new to Man. The same observer reports the Lapland Bunting in 1933, the Velvet-Scoter in 1934, the Little Gull in both years, the Ferruginous Duck (twice) in 1933, the Great Snipe in 1934.

The Alpine Swift, hitherto unrecorded in Man, is reported by Mr. C. F. Butterworth.

Most of the occurrences in 1933 have already been detailed in the Manx Museum's Report, published in *N. W. Naturalist* (September and December, 1934), which contains also much information on the common species.

Our colonies of cliff-haunting birds flourish, and tend in general to extend and increase.

RAVEN (*Corvus c. corax*).—Another instance of nesting in a tree, at Ballaglass, is reported by Mr. H. M. Rogers in 1934.

HOODED CROW (*Corvus c. cornix*) and CARRION-CROW (*C. c. corone*).—The latter is again reported from various localities in both years. On Peel Hill Mr. F. S. Graves again noted the mating of a Hooded male with a hybrid female in both years, and in each case apparently only two young were reared (*cf. N. W. Naturalist*, June, 1934, p. 153).

CROSSBILL (*Loxia c. curvirostra*).—A few seen by Colonel Madoc in August, 1933.

LAPLAND BUNTING (*Calcurius lapponicus*).—Colonel Madoc saw one very plainly among a number of small birds at Ronaldsway on November 18th, 1933.

YELLOW WAGTAIL (*Motacilla f. rayi*).—A number of reports from March to September, but none of nesting.

WHITE WAGTAIL (*Motacilla a. alba*).—Numerous in spring and autumn on passage.

GARDEN-WARBLER (*Sylvia borin*); BLACKCAP (*Sylvia atricapilla*); LESSER WHITETHROAT (*Sylvia curruca*).—A few reports of these species continue, but little is yet known of their status in Man.

RING-OUZEL (*Turdus t. torquatus*).—In 1933 one or two reports which point to breeding. One at Chickens Light, April 5th, 1934.

WHINCHAT (*Saxicola r. rubetra*).—Seen in May, June, July, August, once with young. A pair was also observed by Mr. H. M. Rogers all through the nesting season in 1934, but no nest was found.

REDSTART (*Phanicurus ph. phanicurus*).—Seen in May, July, September. Three at Chickens Light on April 26th, 1934.

BLACK REDSTART (*Phaenicurus o. gibraltariensis*).—One mature bird, November 6th, 1933, Marine Drive (Madoc).

ALPINE SWIFT (*Apus melba*).—Mr. C. F. Butterworth, who was familiar with the bird in Bohemia, reports seeing one May 17th, 1933, at Ballacreggan, Pt. St. Mary, with Swallows. He believes that another was seen in May, 1931, and a third in May, 1934; all the observers had met with the species on the Continent.

BARN-OWL (*Tyto a. alba*).—Many reports; breeding at various places. (Colonel Madoc, F. S. Graves, G. Clementson, F. Wilkinson).

BUZZARD (*Buteo b. buteo*).—Colonel Madoc saw a pair soaring over Surby Mountain on March 27th, 1934.

HEN-HARRIER (*Circus cyaneus*).—Colonel Madoc saw a female on February 3rd, 1933. Another female was killed in Glen Auldyn on August 28th, 1934 (Messrs. J. Bell and F. A. Craine).

HERON (*Ardea c. cinerea*).—The colony of 1931 continues to be occupied; 10 pairs nested in 1933, in spite of persecution by Ravens and Magpies. About 30 were seen together on the southern shores sometimes in August and September.

FERRUGINOUS DUCK (*Nyroca nyroca*).—Colonel Madoc saw a female on January 22nd, 1933, and a young male on December 11th, 1933.

LONG-TAILED DUCK (*Clangula hyemalis*).—Now seen regularly in winter (Colonel Madoc, Derbyhaven coast; F. S. Graves, Peel Bay). Two specimens, one a fine male, received at Manx Museum from G. W. Adams in winter, 1934-5.

EIDER (*Somateria m. mollissima*).—Also regular in winter (Colonel Madoc, F. S. Graves, H. M. Rogers, C. F. Butterworth). Three specimens, the first received, came to the Museum in the winter of 1934-5.

VELVET-SCOTER (*Oidemia fusca*).—One watched at Derbyhaven by Colonel Madoc on January 7th, 1934.

MANX SHEARWATER (*Puffinus p. puffinus*).—Seen all summer in the south-west tideways (A. Sim (Chickens) ; C. F. Butterworth).

FULMAR (*Fulmarus g. glacialis*).—Seen in almost every month in the year at Chickens (A. Sim) ; daily during the breeding-season, sometimes in numbers on south-west coast (A. Sim, C. F. Butterworth). Observed by F. S. Graves both years at the Peel Station, as in former years (see Vol. XXVI., p. 337; XXVII., p. 44; *N. W. Naturalist*, 1934, p. 369; *Journal of Manx Museum*, December, 1934, p. 213).

TURTLE-DOVE (*Streptopelia t. turtur*).—Several reports, April, August, September.

GREEN SANDPIPER (*Tringa ochropus*).—One seen at close quarters (Port-e-Chee, August 6th and 13th, 1933) by W. S. Cowin.

TEMMINCK'S STINT (*Calidris temminckii*).—Colonel Madoc says : " On September 2nd, 1934, L. Sim, Cregeen, Corrin and I came on this bird, no doubt a young one, and very tired. It was there on September 4th and up to September 9th. Very like a diminutive Sandpiper, but with white pieces showing on the back and white patches showing on the tail in flight ".

DUSKY REDSTART (*Tringa erythropus*).—Colonel Madoc and others saw one at close range at Langness on August 26th, 1934. " There was no doubt about its identity, and what settled it was the call when we put it up. On September 2nd we were in these parts again, and found two together with a (Com.) Redshank alongside. An interesting comparison as to height, etc. They were very tired, as they hardly moved even when we got close up ".

GREAT SNIPE (*Capella media*).—On November 12th, 1934, Colonel Madoc, with Messrs. Corrin and Corris, saw one " on a rock off Langness, a very fine view, until it flew off toward Castletown, a straight and very heavy flight, as I have noticed before. The breast-marks and the white tail-feathers were very noticeable in flight ". In his *Bird-life* Colonel Madoc mentions another, identified by Mr. L. Sim and himself, seen January 15th, 1933, and again a few days later (p. 168).

SANDWICH TERN (*Sterna s. sandvicensis*).—Increasing number of reports, March to October (F. S. Graves and G. Clementson, at Peel ; Colonel Madoc, on north shores).

LITTLE GULL (*Larus minutus*).—Colonel Madoc saw one off Pt. of Ayre on October 27th, 1933 ; and another, Ronaldsway, on October 25th, 1934.

LESSER BLACK-BACKED GULL (*Larus fuscus*).—Very scarce except at breeding places, but Mr. Graves observed one of the Northern form (*L. f. fuscus*), with very dark mantle and bright yellow legs, in Peel Harbour, on September 12th, 1934.

GREAT BLACK-BACKED GULL (*Larus marinus*).—Still increasing ; Mr. Butterworth saw fifty in one day in May, 1934, on the south-west coast.

GLAUCOUS GULL (*Larus hyperboreus*).—One, apparently mature, was seen by Colonel Madoc in Castletown Bay on December 3rd, 1933 ; another by Mr. Clementson at Traie Vane on October 1st and 2nd, 1934 ; this latter had been observed by several people during the latter part of September. A dead specimen was also found on the shore by the Messrs. Adams in the winter of 1934-5, too far gone for preservation.

ICELAND GULL (*Larus leucopterus*).—An immature bird, white with much light brown marking, was found dead at Jurby Point on February 24th 1935, by the Messrs. Adams. Though it had lain apparently for some time, they were able to preserve it for the Manx Museum.

LITTLE AUK (*Alle alle*).—In February, 1935, four were found dead on Douglas shore, of which two were set up for the Museum by G. W. Adams. Several other records of the species by Colonel Madoc, January 3rd and December 14th, 1933 ; December 16th, 1934.

RECOVERY OF MARKED BIRDS.

(Continued from page 55.)

Sheld-Duck (*Tadorna tadorna*).

No.	Ringed.	Recovered.
38843	Goswick (Northumb.), 26.6.33, young, by Mrs. Hodgkin.	Holy I. (Northumb.), 14.4.35, by J. Brigham.

Mallard (*Anas p. platyrhynchos*).

RINGED AS FULL-GROWN.

AA.7725	Almondbank (Perth.), 20.8.34, by Lord Mansfield.	Dumfries., —.12.34, by M. Williamson.
AA.8504	Leswalt (Wigtown.), 6.3.34, by J. Law.	Loch Spynie (Moray.), 16.2.35, by J. B. Dunbar.
AA.8541	Ditto 9.3.34.	Dovre, Opland, Norway, 29.4.35, by Zool. Mus., Oslo.
32791	Ditto 8.3.33, by M. Portal.	Gamla-Karleby, West Fin- land, 15.8.33, by H. Sund.
AL.449	Ditto 17.3.31.	Kinnula, West Finland, Autumn, 1931, by Prof. Välikangas.

Gadwall (*Anas strepera*).

RINGED AS YOUNG, FROM PINIONED PARENTS.

AA.6070	Burton - on - Trent (Staffs.), 1.8.33, by M. Meynell.	Meriden (Warwicks.), —.11.33, by J. D. Wood.
---------	--	---

Teal (*Anas c. crecca*).

R.5131	Leswalt (Wigtown), 28.2.28, ad., by M. Portal.	Karlskrona, Sweden, 1.8.29, by Col. Malmberg.
Orielton 82	Pembroke, 6.2.35, ad., by S. Greenslade.	Wareham (Dorset.), 10.2.35, by ringer.

Wigeon (*Anas penelope*).

A.6026	Loch Insh (Inverness.), 30.6.34, young, for Oxford Orn. Soc.	Killala (Mayo), —.2.35, by R. Blennerhassett.
A.8543	Leswalt (Wigtown), 4.3.35, ad., by J. Law.	Where ringed, 19.4.35, by T. Lees.

Tufted Duck (*Nyroca fuligula*).

A.8303	Molesey (Surrey), 19.12.33, by P. Hollom.	Barry (Glam.), 27.1.35, by F. Gaston.
--------	--	--

Eider (*Somateria m. mollissima*).

A.7675	Tentsmuir (Fife.), 15.6.34, juv., by Lord Mansfield.	Largo (Fife.), 18.5.35, by D. McBay.
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Cormorant (*Phalacrocorax c. carbo*).

RINGED AS NESTLINGS.

13315	Mochrum (Wigtown), 3.8.34, by Lord Dumfries.	Annan (Dumfries.), 18.12.34, by W. Henderson.
13316	Ditto 3.8.34.	North Berwick (East Lothian), 18.12.34, by A. Main.

Cormorant (*continued*).

RINGED AS NESTLINGS.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
113314	Mochrum (Wigtown), 28.6.34. by Lord Dumfries.	Loch Leven (Kinross.), 3.1.35, by W. Telfer.
114337	Ditto 3.8.34.	St. Asaph (Flint.), 5.1.35, by R. Roberts.
113306	Ditto 3.8.34	Topsham (Devon.), 11.3.35, by Ben Bolt.
114201	Ditto 3.8.34.	Chateaulin (Finistère), France, 19.12.34, by J. Denniélou.
114313	Ditto 3.8.34.	Fouesnant (Finistère), France, 18.9.34.
102046	Ditto 18.7.31, by Lord D. Crichton-Stuart.	Wigtown Bay, 24.5.35, by A. Cannon.
112046	Farne Is. (Northumb.), 4.7.34, for Bootham Sch.	Berwick-on-Tweed, 9.1.35, by R. H. Dodds.
112042	Ditto 4.7.34.	Aberdour (Fife.), 16.1.35, by Mrs. Marks.
113042	Skomer (Pembs.), 1.7.34, by R. M. Lockley.	Newton Abbot (Devon.), 24.2.35, by E. Greatrex.
113010	Ditto 1.7.34.	Salcombe (Devon.), 6.5.35, by H. Field.
113056	Ditto 1.7.34.	Val André (Côtes-du-Nord), France, 5.2.35, by J. Herbert.
113047	Ditto 1.7.34.	Fouesnant (Finistère), France, 24.12.34.
113048	Ditto 1.7.34.	Quimper (Finistère), France, 25.9.34, by P. Bureller.

Shag (*Phalacrocorax a. aristotelis*).

109675	I. of Canna (Inverness), 19.6.33, young, for Mid- lothian O.C.	Loch Snizort, Skye, —.1.35, by <i>Dundee Advertiser</i> .
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Gannet (*Sula bassana*).

RINGED AS NESTLINGS.

113331	Ailsa Craig, 25.8.34, by Lord Dumfries.	Off Rabat, Morocco, 11.2.35, by Soc. Sci. Nat. du Maroc.
115917	Grassholm, 17.7.34, by C. Wontner-Smith.	Ditto 11.2.35.
115536	Ditto 17.7.34.	Off W. Coast, Morocco, —.1.35, by H. B. M. Consul, Malaga.
115050	Ditto 17.7.34.	Off C. Blanco, Rio de Oro, —.2.35, by G. Belloc.
116800	Ditto 17.7.34.	Ditto —.2.35.
115340	Ditto 17.7.34.	Off Mauritania, 20° 20' N., 12.1.35, by J. Mantua.
116427	Ditto 17.7.34.	Ditto 12.1.35.

RINGED AS FULL-GROWN.

115153	Grassholm, 17.7.34, by C. Wontner-Smith.	Trevose Head (Cornwall), 1.3.35, by P. Bourgain.
115592	Ditto 17.7.34	St. Agnes Head (Cornwall), 22.4.35, by J. S. Paull.

Gannet (*continued*).

RINGED AS NESTLINGS.

No.	Ringed.	Recovered.
113036	Grassholm, 17.7.34, by R. M. Lockley.	160 m. S.W. of St. Ann's Head (Pembs.), 22.5.35, by Lt.-Comdr. Frampton.

Manx Shearwater (*Puffinus p. puffinus*).

RINGED AS FULL-GROWN.

RR.7396	Skomer (Pembs.), 17.6.34, by F. J. Mitchell.	Off Mundaca (Vizcaya), Spain, —.4.35, by M. Lecosaiz.
RV.6909	Skokholm (Pembs.), 21.7.34, by C. Wontner-Smith.	Off Ushant, France, 23.4.35, by K. W. Newall.
RV.5423	Ditto 14.7.34.	Off St. Jean-de-Luz (Basses Pyrénées), France, 10.4.35, by R. Grilli.
RV.6241	Ditto 18.7.34.	Ditto 10.4.35.
RV.2055	Ditto 16.7.34.	Off Mundaca (Vizcaya), Spain, 8.4.35, by F. San Juan.
RV.6437	Ditto 19.7.34.	Ditto 8.4.35.
RV.7507	Ditto 13.8.34.	Off Lequeitio (Vizcaya), Spain, 31.3.35, by H. B. M. Consul, Bilbao.

Ringed Plover (*Charadrius h. hiaticula*).

AP.1148	Blakeney (Norfolk), 19.7.33, young, by Mrs. Wilson.	Croix - de - Vie . (Vendée), France, 11.3.35, by A. Chappellier.
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Lapwing (*Vanellus vanellus*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

P.7447	Penrith (Cumb.), —.5.33, by H. J. Moon.	Workington (Cumb.), 7.1.35, by A. Dalzell.
P.7498	Ditto —.5.33.	Donoughmore (Cork), 8.1.35, by A. Atkins.
P.9914	Ulverston (Lancs.), 7.6.33, by H. S. Greg.	Navan (Meath), 31.1.35, by B. Fitzherbert.
S.5802	Cartmel Valley (Lancs.), 15.6.29, by H. S. Greg.	Tullamore (King's Co.), 27.1.35, by P. Molloy.
AR.373	Lancaster, 18.5.33, by H. S. Greg.	Queenstown Junction (Cork), —.1.35, by E. Leahy.
N.7072	Whalley (Lancs.), 17.7.32, by C. Oakes and E. Battersby.	Fence (Lancs.), —.3.35, by J. D. Winder.
F.1357	Hambledon (Bucks.), 5.6.32, by R. J. Spittle.	St. German's (Cornwall), 4.3.35, by G. Jane.

(b) RECOVERED WHERE RINGED.

P.1573	Glenorchard (Stirling), 31.5.33, for J. Bartholomew.	—.3.35.
S.1002	Ditto 25.6.29.	—.2.35.
R.6605	Langwathby (Cumb.), —.7.34, by H. J. Moon.	4.2.35.
R.1307	Kirkby Lonsdale (Westmor.), 10.5.34, by H. J. Moon.	—.5.35.
N.8047	Laugharne (Carms.), 7.5.33, by J. F. Thomas.	2.5.35.

RINGED AS FULL-GROWN.

R.5806	Dunure (Ayr.), 13.6.34, by J. L. Guthrie.	Banna (Kerry), 26.2.35, by A. Hyland.
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Redshank (*Tringa t. totanus*).

No.	Ringed.	Recovered.
AS.196	Almondbank (Perth.), 10.6.34, young, by Lord Mansfield.	Carnoustie (Angus), 14.1.35, by J. Sharpe.

Curlew (*Numenius a. arquata*).

AA.9129	Penrith (Cumb.), 12.6.34, young, by H. J. Moon.	Shanahoe (Queen's Co.), 22.12.34, by T. Smyth.
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Snipe (*Capella g. gallinago*).

I.F.29	Laugharne (Carms.), 7.5.34, young, by J. F. Thomas.	Llanstephan (Carms.), —.1.35, by D. Morris.
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Woodcock (*Scolopax r. rusticola*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

200106	Ardclach (Nairn), 29.4.34, for Brit. Trust Orn.	Cawdor (Nairn), —.11.34, by W. B. Alexander.
AR.5343	Scone Estate (Perth.), 18.6.34, by Lord Mansfield.	Muckcross (Kerry), 13.12.34, by F. Beazley.
AS.158	Almondbank (Perth.), 11.5.34, by Lord Mansfield.	Mieres (Asturias), Spain, 10.12.34, by R. Uria.
200408	Glen (Peebles), 7.5.34, for Brit. Trust Orn.	Peebles, 19.12.34, by H. Mitchell.
T.7251	Newtonairds (Dumfries.), 26.5.29, by Lord Mansfield.	Plumpton (Lancs.), 12.1.35, by Lt.-Col. Porritt.
S.6161	Abbeystead (Lancs.), —.5.31, by H. W. Robinson.	Halton (Lancs.), 8.1.35, by E. Burrow.
200524	Edencrannon (Tyrone), 30.6.34, for Brit. Trust Orn.	Ballynasollus (Tyrone), 26.1.35, by E. Tosh.

(b) RECOVERED WHERE RINGED.

200563	Novar Estate (Ross.), 19.6.34, for Brit. Trust Orn.	5.10.34.
200111	Cawdor (Nairn), 3.5.34, for Brit. Trust Orn.	—.11.34.
200156	Dunphail (Moray), 1.6.34, for Brit. Trust Orn.	1.2.35.
AR.5058	Brechin (Angus), 4.5.34, by Lord Mansfield.	31.12.34.
AR.5050	Ditto 18.5.34.	24.4.35.
AR.5072	Coupar Angus (Perth.), 5.7.34, by Lord Mansfield.	13.10.34.
AP.6190	Inchtute (Perth.), 24.4.33, by Lord Mansfield.	30.12.34.
AR.5337	Greenloaning (Perth.), 23.5.34, by Lord Mansfield.	17.11.34.
AS.779	Bridge of Allan (Stirling), 20.5.34, for Brit. Trust Orn.	17.11.34.
AR.9253	Ditto 7.5.35, for J. Bartholomew.	20.5.35.
S.8308	Garden (Stirling), 29.5.34, by Sir S. Bilstand.	28.12.34.
AR.5624	Cairnsmore (Kirkcudbr.), 2.5.34, by Col. Blair Imrie.	6.12.34.

Sandwich Tern (*Sterna s. sandvicensis*).

R.1076	Scolt Head (Norfolk), 29.6.30, young, by A. W. Boyd.	Le Touquet (Pas-de-Calais), France, —.4.35, by M. Rousseau.
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Black-headed Gull (*Larus r. ridibundus*).

RINGED AS FULL-GROWN.

RR.8073	Friern Barnet, London, 25.2.34, for L.N.H.S.	Norresundby, Jylland, Den- mark, 22.1.35, by C. C. Andersen.
RT.4680	Littleton (Middlesex), 29.1.35, by P. Hollom.	Epsom (Surrey), 6.3.35, by W. Kelly.

Herring-Gull (*Larus a. argentatus*).

RINGED AS NESTLINGS.

No.	Ringed.	Recovered.
401010	Midland (Pembs.), 14.7.34, by C. Wontner-Smith.	St. Clears (Carms.), 24.5.35, by Miss Evans.
402063	Skokholm (Pembs.), 14.7.34, by R. M. Lockley.	Where ringed, 22.4.35, by ringer.
400372	Dungeness (Kent), 26.6.34, by P. Hollom.	Rochester (Kent), 18.2.35, by J. Inwood.
400211	Benbane Head (Antrim), 22.6.34, by T. Kerr.	Portpatrick (Wigtown), 11.2.35, by P. Biggar.

Lesser Black-backed Gull (*Larus f. graellsii*).

RINGED AS NESTLINGS.

402374	Foulshaw (Westmor.), 27.7.34, by H. W. Robinson.	Pornic (Loire Inf.), France, 25.4.35, by M. Bachelier.
400679	Walney I. (Lancs.), 15.7.34, by H. W. Robinson.	Grimsby (Lincs.), 3.2.35, by C. White.
AA.1801	Ditto 8.6.33.	Littleton (Middlesex), 29.1.35, by P. Hollom.
400565	Ditto 24.6.34.	Figueira da Foz (Beira), Portugal, —.9.34, by J. A. dos Reis.
400669	Ditto 15.7.34.	Faro (Algarve), Portugal, 18.1.35, by W. A. Tait.
AA.5777	Ditto 10.6.34.	Casablanca, Morocco, 2.2.35, by Soc. Sci. Nat. du Maroc.

Great Black-backed Gull (*Larus marinus*).

401062	Skokholm (Pembs.), 18.7.34, young, by C. Wontner-Smith.	Sables d'Olonne (Vendée), France, 21.1.35, by P. Rambaud.
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Razorbill (*Alca torda*).

AM.908	Handa (Suth.), 29.6.32, ad., by E. C. Sharp.	Lofoten Is., Norway, —.7.34, by T. H. L. Schaanning.
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Southern Guillemot (*Uria a. albionis*).

RV.4608	Ailsa Craig, 1.8.34, young, by Lord Dumfries.	Off St. Jean-de-Luz (Basses Pyrénées), France, 27.2.35, by R. Ratio.
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Moorhen (*Gallinula ch. chloropus*).

RT.5930	Methley (Yorks.), 4.2.34, ad., by C. Wontner-Smith.	Where ringed, —.1.35, by ringer.
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Coot (*Fulica a. atra*).

AA.9201	Hickling (Norfolk), 29.5.34, young, by Mrs. Wilson.	Where ringed, 16.1.35, by J. Vincent.
AK.835	Ditto 29.5.34.	Ditto 9.2.35.

NOTES

ROOST OF TWITES IN OUTER HEBRIDES.

WHEN staying with Capt. J. A. R. Macdonald at Balranald, in North Uist, in spring, 1935, I discovered a large "roost" of Twites (*Carduelis f. bensonorum*). This was in a plantation of willow trees near Balranald House, about a hundred yards long by forty yards wide, and about eight feet high. On July 1st, at 9.30 p.m. summer time, I went through these bushes carefully with my wife, and we drove out at least a hundred Twites. They came out in little flights of two to six birds, and from one little clump of trees fifteen appeared. This is a couple of hundred yards from the breeding place of about eight pairs of Twites, but I saw no numbers of Twites in the neighbourhood to account for anything like so large a "roost". I do not think that I had previously seen more than thirty Twites within a mile of this place. The nesting season was not yet over. Next evening I went over to see the birds arrive. They came in little parties from all directions. It is difficult to guess the number of birds, but I should certainly estimate it at between one and two hundred. These must have been drawn from a very considerable area as Twites, even in the Outer Hebrides, are in my experience not such very common birds as some writers have stated.

J. M. McWILLIAM.

A GREAT TIT TRIANGLE.

DURING the years 1930-33 we have had only a single pair of Great Tits (*Parus major newtoni*) nesting in our garden in Devon, but they invariably raised two broods. Last year the hen broke her neck against a window while feeding two or three of her babies on the railing of our verandah—and for the first time there was no second family. This year there were two hens, sitting on eggs within forty yards of one another, but only one male. I have no absolute proof that the male I watched was always the same individual. On the other hand, if a second was ever present, it must have been dumb to have had any chance of escaping detection. Morning after morning the only Tits audible were: one pair of Great, one of Blue (*P. c. obscurus*) and one of Marsh (*P. p. dresseri*). Having watched these birds at their respective nests, I unfortunately took little notice of the remaining unoccupied boxes, hence the sketchiness of the notes that follow.

On April 20th a circular impression in the dust on the floor of a nesting-box indicated that that box was occupied. Next day the floor was covered with moss. On the 23rd a Great Tit began to roost on the partially completed nest. On the 28th the first egg was laid. On the 29th, while the hen was laying her second egg, the male, in the intervals of "sawing", inspected an empty box destined to belong to the second hen. At 7 a.m. a hen, which I now suspect was actually No. 2, though No. 1 had laid her egg by that time and was off the nest, was seen inspecting a large box ultimately occupied by Starlings. She received a shower of fleas which were clustering round the entrance hole, no doubt awaiting the annual Starling occupation. Sudden and violent scratching terminated the house hunting!

Hen No. 1 continued to roost on her nest until May 6th when, instead of flying off as usual soon after 6 a.m., after laying her ninth egg, she began to brood. Next day she laid a tenth.

On May 13th two Great Tits joined in the mobbing of a Brown Owl which had young in a box close to the still-unsuspected hen No. 2's nest. Hen No. 1 was sitting at the time, so at last I began to suspect the Great Tit triangle, and looked into the box I had seen the male inspecting on April 29th. There I found seven Great Tit's eggs. On the following day hen No. 2 began to brood, which suggests that she was beginning to lay when the first hen was completing her clutch.

On May 15th hen No. 1 (in shabby plumage, easily distinguishable from hen No. 2) was seen for the last time, when she fed on the verandah with the male looking on. After that she completely disappeared—she may have died, but I think she was probably taken by a Sparrow-Hawk. The male had "sawed" indiscriminately over both nests and apparently fed both hens. In the evening he took a caterpillar to hen No. 2, whereupon I hurried down to the deserted nest of No. 1 and waited. In ten minutes along came the male, but only for a moment. Twenty minutes later he returned, perched near the nest with a caterpillar in his beak, and called. Presumably because he received no reply he flew away. Half an hour later I saw a Great Tit clinging to the entrance hole. It did not go inside. I was a long way off, but imagine that it was the male bird taking one last look at the departed hen.

Hen No. 2 sat until June 2nd—for practically three weeks, and perhaps longer, for I was away for the remainder of that week. So both broods came to nothing. G. B. GOOCH.

THREE LONG-TAILED TITS AT ONE NEST.

DURING one of my rambles in a wood near Hythe I came across the nest of a Long-tailed Titmouse (*Ægithalos c. roseus*). On inserting my finger into the entrance of the nest to ascertain if there were any eggs I came across innumerable open beaks. I counted with difficulty up to fourteen and then I became mixed as to the exact number. Thinking that it would be interesting to watch, I retired behind a broom bush and waited. After a while a Long-tailed Titmouse came with a grub in its beak and perched beside the nest, but evidently saw me and was afraid to enter. Then another one arrived, also with a grub in its beak, and perched on the same bush, and then a third bird came with a grub and did the same thing. So there were three Long-tailed Tits, each with a grub in its beak, on the same bush at the same time, waiting to feed their young. The male bird evidently had two wives and I draw this conclusion from :—

- (1) The number of young in the nest, about twenty ;
- (2) From actually seeing three birds, each with a grub in its beak, at the same time on the same bush and each entering the nest.

First one went in and flew out, then the second and then the third. I only saw all three together once, after that they came one by one.

It has been suspected that the Long-tailed Tit may sometimes have two hens at the same time from the number of eggs occasionally found in the nest, but I am not aware that this has been proved before. P. VERNON DODD.

[The presence of three birds at one nest has been proved by observations on at least four previous occasions, while there are three records of four birds at one nest.—F.C.R.J.]

HEN WILLOW-WARBLER RETURNING TO NEST IN SAME PLACE.

ON June 6th, 1934, I found a nest of a Willow-Warbler (*Phylloscopus t. trochilus*) on the edge of an oak wood about four miles west of Gloucester. On the same day I was able to catch the hen bird on the nest and ring it. The ring number was MX234. In May, 1935, I made a search in the same place and found a Willow-Warbler's nest within twenty yards of the spot where I had found it last year, and on the 24th I was able to catch the hen bird brooding the young on the nest and I found that she had the ring (MX234) on her leg.

I had long suspected that some Willow-Warblers and Chiffchaffs come back in the spring to nest in their same summer territories, because I have so often observed in taking a census

of territories and nests of these two species in a certain area of this county during the last six years that nests occur within a short distance of each other year after year.

Whether the cock bird with which this hen mated was the same as last year I am unable to state, as I find it difficult to catch cock Willow-Warblers on nests and I am not sure if they do any brooding in turn with the hen or not. It seems to be a fairly generally accepted idea that the cocks in early spring come some days before the hens and seek out territory. This hen bird came back to the same territory. But did she come back to the same cock? Here I venture to think is an important field for research.

M. PHILIPS PRICE.

BLACKBIRD'S NEST WITH EIGHT EGGS.

At the end of May, 1935, we found, in a Girton orchard, Cambs., the nest of a Blackbird (*Turdus m. merula*) containing eight eggs. Seven of the young birds were successfully reared, one of the eggs remaining unhatched.

A. HIBBERT-WARE.

[A clutch of eight eggs was recorded for Devon (*B.B.*, XIII., p. 274) and Capt. L. R. W. Loyd also found a nest with eight eggs in 1925. Seven eggs or young have been met with on about five occasions.—F.C.R.J.]

CENSUS OF NIGHTINGALES IN GLOUCESTERSHIRE.

[In Vol. XXVIII. of *British Birds* (pp. 82,83) I gave a census of Nightingales (*Luscinia m. megarhyncha*) for an area of about 2,000 acres in Gloucestershire, covering the years 1932-34. This year I have continued the census over a wider area but including that of last year. The extended area is a triangle with its easterly point near the outskirts of Gloucester city and stretching between the Gloucester-Ross and Gloucester-Ledbury roads to a base drawn between Newent and Huntley along the east side of May Hill. This area is about 4,000 acres.

Taking the smaller area first, of the last three years, I find the census of Nightingales for 1932 to 1935 comes out as follows:—

		Song	Nesting	Broods	Total
		Territories.	Areas and Nests Found.	Reared.	Adult Population.

1932	...	7	2	2	9
1933	...	6	2	2	8
1934	...	7	3	3	10
1935	...	12	7	6	19

Over the extended area the results were :—

	<i>Song Territories.</i>	<i>Nesting Areas and Nests Found.</i>	<i>Broods Reared.</i>	<i>Total Adult Population.</i>
1935 ...	17	10	9	27

The first thing to note here is the sudden increase in the Nightingale population of this area for this year. The number has nearly doubled in one year. It comes to one's mind that possibly the appearance of the Nightingale in Wales and other western territories is not unconnected with the pressure of population in the older haunts to the east. In my previous note I gave the types of vegetation association which I find invariably connected with the presence of Nightingales. This year I can record two cases in the smaller area that I worked and one in the extended area where I found Nightingale nests on the edge of woods on the ground in long grass, nettles and willow herb. The suspicion may be warranted that the pressure of population is inducing them to look for nesting sites in hitherto not normal vegetation types.

Lastly I wish to call attention to the ratio between nesting areas and areas occupied by unmated cocks. In their paper "Territory Reviewed" (*antea*, Vol. XXVII., p. 196) Messrs. David and Lambert Lack refer to the "compulsory matelessness," which appears to occur among many warblers, as ground for thinking that territory and mating are not necessarily coincident. It appears that with Nightingales, as with some other warblers, in a given area of country a certain proportion of the population is always unmated cocks with definite territory. In this connexion my observations for the smaller area are as follows :—

	<i>Mated Pairs.</i>	<i>Unmated Cocks.</i>
1932 ...	2	5
1933 ...	2	4
1934 ...	3	4
1935 ...	7	5

It appears that this year a greater number obtained mates, but there were roughly the same number that failed to obtain any. I should say in this connexion that there may have been some unmated hens which escaped me but I do not think this was so. My impression is that these unmated cocks hold a territory and sing regularly in it adjoining a territory

occupied by a nesting pair. Struggles take place here, and that not only in the early part of the season. I saw a fight between a mated and unmated cock as late as May 26th. After June 20th the territories this year rapidly broke up. Some may have done so earlier. The unmated cocks wandered away from their previous singing places and the mated birds with fledged young, after remaining for about a week in the old territory, moved off and apparently dispersed. On the length of time, however, that the young Nightingales stay with the parents I have little information.

M. PHILIPS PRICE.

COMMON BUZZARDS IN SURREY.

WITH reference to my note (*antea*, Vol. XXVII., p. 26) concerning a Common Buzzard (*Buteo b. buteo*) wintering in the Farleigh district of north-east Surrey, 1932-33, I am pleased to be able to record further visits of this species to the same locality, the dates being as follows: One seen February 24th, 25th, and March 3rd, 1934. On the latter date I watched it, through glasses, engaged in soaring flights from 3.25 p.m. to 4.10 p.m., the weather being bright and sunny, but the performance terminated on the approach of an aeroplane by the Buzzard descending steeply from a considerable height and taking refuge in a distant wood.

The following autumn another came under my notice, being first seen on November 11th, and subsequently on the 17th; December 1st, 1934; January 5th, 6th, 12th, 19th; February 3rd, 9th, 23rd; March 2nd and 3rd, 1935. It is interesting to note that the bird roosted in the same plantation as the one of 1932-33. It was mobbed a great deal by Carrion-Crows (*Corvus c. corone*) and Magpies (*Pica p. pica*) whenever it entered the plantation to roost, and during soaring exercise there was often a Sparrow-Hawk (*Accipiter n. nisus*) in attendance.

HUBERT E. POUNDS.

HEN-HARRIERS IN SUSSEX AND KENT.

WITH reference to Mr. J. F. Thomas's note on a Hen-Harrier (*Circus c. cyaneus*) seen by him near Seaford on November 25th, 1934 (Vol. XXVIII., p. 315), this bird seems to have been more numerous than usual in south-east Sussex and the adjoining parts of Kent during the past winter. On November 27th one was shot by Mr. G. Hickman at Brenzett in Romney Marsh and about the same time Mr. G. Bristowe had two others sent in to him from Beckley and Crowhurst respectively. Mr. R. B. Burrows reported to me that he saw two, in widely

separated localities (and so probably different birds), in the Dungeness area on January 16th, 1935, while Mr. P. Allen and I watched one for a long time hunting a reed-grown ditch in Romney Marsh on March 24th. This was clearly a female or an immature bird and it remained in the same area for nearly a month. I had a brief glimpse of it again on April 14th, and Mr. Allen saw it on several occasions between. On April 15th my son, H. F. Ticehurst, twice saw an adult male at Camber and was near enough to it to make out that it was a Hen-Harrier and not a Montagu's, which, of course, it might have been at that date. This bird haunted that part of the marsh for at least ten days and was seen on three evenings, 18th, 20th and 25th, hunting over the shingle flat at Jury's Gap. On the 18th my son watched it make an unsuccessful stoop at a leveret there. N. F. TICEHURST.

SPOONBILL IN SUSSEX AND KENT.

ON April 13th, 1935, at the Midrips, my son drew my attention to a large white bird that was flying almost overhead. With the help of our glasses we both at once saw that it was a Spoonbill (*Platalea l. leucorodia*). It had apparently just arrived from over the sea and would probably have settled on one of the pools had we not been there. It circled round twice, giving us very good views of it, and then went off inland. The next day we failed to find it in the most likely places in Romney Marsh, but on the 16th it was seen by Mr. P. Allen at one of the Fleets in the middle of the marsh.

What was evidently the same bird was seen in the same area on April 14th by Messrs. R. K. Cornwallis and J. F. Monk, who describe it (*Field*, 15, vi., 35) as a bird with a well-developed crest.

Single Spoonbills have been fairly frequently seen in spring on the sands at the east side of Dungeness, but are decidedly infrequent on the Sussex side. N. F. TICEHURST.

GREY LAG-GESE IN KENT.

ON April 7th, 1935, my sons and I put up three Grey Lag-Geese (*Anser anser*) from some flood-water in Romney Marsh, within a few hundred yards of the place where we saw four on April 17th, 1929 (Vol. XXIII., p. 39). They were rather wild, but as they flew we could make out their pale rumps and wing-coverts. Later on, when they had settled, though visibility was poor owing to rain, we saw their pink bills and legs and noted the absence of white on the foreheads and their plain under-parts. N. F. TICEHURST.

EARLY NESTING OF SHELD-DUCK IN KENT AND SUSSEX.

IN the *Practical Handbook* the nesting-season of the Sheld-Duck (*Tadorna tadorna*) is given as "usually the latter half of May, occasionally early in the month", though Mr. Jourdain informs me that laying has been recorded as commencing in Norfolk so early as April 17th. On April 15th, 1935, my son, Hugh F. Ticehurst, was shown a nest in a rabbit-hole on the west side of Dungeness, where some four to seven pairs have nested since about 1923. The edge of the nest could only just be felt at full arm's stretch, but three eggs were lying near the mouth of the hole, having probably been kicked out by rabbits, and one of them had already been sucked by a Magpie or Rook. It was feared that the other two would have been spoilt by frost, but one of them subsequently hatched under a hen and the young bird is being successfully reared. It is probable, I think, that there were other eggs in the nest, as subsequent observations showed that it was still being used. In the same area two broods, of nine and four, made their first appearance on the pools on May 12th, one being in Kent and the other in Sussex. I saw both myself on the 15th. Reckoning twenty-eight days as the average incubation-period, the first egg in the case of the larger brood cannot have been laid later than April 5th. In 1933 the first brood (fourteen) was seen during the first week in June, and in 1934 I saw the first (fifteen) on the 8th, though the young in the latter case were probably already several days old. In both years laying would therefore have probably begun during the last week in April. N. F. TICEHURST.

LONG-TAILED DUCK INLAND IN CHESHIRE.

FROM February 24th to April 13th, 1935, a Long-tailed Duck (*Clangula hyemalis*), a female or immature bird, frequented the pool at Doddington, Cheshire, spending a great deal of time under water. It could usually be found with a party of Goldeneyes (*Bucephala c. clangula*), which were rather more numerous than is normal on a Cheshire mere—on March 1st I counted twenty-four restless birds flying about together.

Though the Long-tailed Duck occurs not infrequently on the coasts of Lancashire and Cheshire (several were seen in both counties during the winter and early spring) it is one of the rarest visitors to the meres and I know of only two previous records—in 1910 and 1919 (*B.B.*, IV., 219, and XIII., 245).

A. W. BOYD.

ICELAND REDSHANK IN LANCASHIRE.

ON October 21st, 1933, I shot an Iceland Redshank (*Tringa totanus robusta*) on the Megazine Scar off Barrow-in-Furness, Lancs. This is the first record for Lancashire. The specimen is an adult female with wing 171 mm., bill 43 and tarsus 52. Mr. H. F. Witherby has kindly examined it and confirmed my identification, and has referred to it in Vol. XXVIII., p. 372. This bird was resting at top-tide in company with Knots and Dunlins, although there were hundreds of Redshanks in flocks on other scars within a mile. I was able to compare it in the flesh with thirteen Common Redshanks which were shot the same day (for food), and this bird appeared greyer; but it is not darker above or more streaked below than average adult specimens of the Common Redshank.

R. A. H. COOMBES.

SOOTY TERNS SEEN IN DORSET.

I VISITED Lord Ilchester's swannery (Abbotsbury) on May 24th, 1935, with two friends, and saw there a pair of adult Sooty Terns (*Sterna fuscata*). We had an excellent view of them at a distance of 70 to 100 yards, and used very strong binoculars so that they might have been practically in one's hands. They were sitting amongst a number of Common Terns (*S. h. hirundo*) and also four pairs of Roseates (*S. d. dougallii*), so that size comparison was facilitated. The keeper who was also present said that he had never seen these (Sooty) birds before, and neither had we. I realized at once that they were unusual and asked each member of the party (four) to observe and note most carefully—comparative size, markings, colour and shape of beak, colour of legs (feet were just covered by water), and any other characteristics which struck them. On comparing notes we agreed over practically every point and then verified anything doubtful. Shortly afterwards we returned to my flat in Weymouth and checked our notes with your *Practical Handbook*, Vol. II., and also with Thorburn's large red volumes and a few other books. The U-shaped white mark on the forehead was conspicuous, of course, and the pointed beak, with its widened base, was easily noted. The birds were all sitting on a small sandbank—washing and preening themselves, as a small stream of fresh water runs in just there.

The Sooties were about three or four yards apart, but stood out very distinctly. On June 18th I went to the Natural History Museum to further verify the bird and saw one stuffed and handled three unmounted specimens. These confirmed

my observations. I heard to-day (June 22nd) that the keeper had seen the Sooties once or twice since, but I doubt if they are still there.

CYRIL SAUNDERS.

IMMIGRATION OF CROSSBILLS.—It is evident from a number of communications we have received that an immigration of Crossbills is in progress, and we shall be glad to have notes from readers giving numbers, dates and localities of the appearance of these birds. It will be remembered that there was a large immigration in 1929 and a smaller one in 1930, and that in 1931 the bird was quite common and breeding in many districts. Since that year the numbers have dwindled and recently the Crossbill has become quite a scarce bird and in many places has completely disappeared where it was plentiful.

SCARCE BIRDS IN CAITHNESS.—Mr. J. Bain, writing from the Noss Head lighthouse (*Scot. Nat.*, 1935, p. 34), records the following: A Wryneck (*Jynx torquilla*) on September 8th, 1934, Ortolan Buntings (*Emberiza hortulana*) on October 4th, and a Black Redstart (*Phœnicurus o. gibraltariensis*) on the 17th.

RED-BACKED SHRIKE KILLING ADULT LINNET.—Mr. W. M. M. Chapman writes that on June 28th, 1935, he was passing a small patch of whins in Surrey and saw (at a distance of less than twenty yards) a cock Red-backed Shrike (*Lanius collurio*) seize, kill and carry away an adult Linnet (*Carduelis cannabina*) which was flying either to, or past, the bush in which the Shrike was perching.

THE RACE OF THE BREEDING SONG-THRUSH IN SHETLAND.—Miss E. V. Baxter (*Scot. Nat.*, 1935, p. 110) raises an interesting question with regard to the Song-Thrushes breeding in Shetland. The bird has increased as a nesting species and now breeds fairly regularly about Lerwick, in Mid Yell and in North Unst. Miss Baxter states that a pair she watched near Lerwick and birds which she saw at Balta Sound and in Mid Yell were of the Continental form (*Turdus c. philomelus*). This was in April, 1935, rather early for eggs, but the pair at Lerwick had a completed nest. Miss Baxter does not state that she obtained specimens. The question of race in this case is an important and interesting one in connexion with the origin of the breeding stock in Shetland, and we think that fine specimens should be obtained and critically compared.

GREEN WOODPECKER IN WEST LOTHIAN.—A Green Woodpecker (*Picus v. virescens*) is reported by Lord Linlithgow (*Scot. Nat.*, 1935, p. 2) as having been shot by his keeper in mistake for a hawk, near Winchburgh, on April 17th, 1934.

DARK-BREASTED BARN-OWLS IN ORKNEY AND ISLE OF MAY.—Miss E. V. Baxter has examined a specimen of this race of the Barn-Owl (*Tyto a. guttata*) taken near Stromness in February, 1925, and now in the museum there (*Scot. Nat.*, 1935, p. 50), and Mr. H. F. D. Elder records (*loc. cit.*) that a Barn-Owl which was caught in a hen house on the Isle of May on December 19th, 1934, and later died and was sent to him, also proved to be of this race. This bird is now in the Royal Scottish Museum. There appears to be only one authentic previous record of the Dark-breasted form of the Barn-Owl from Scotland (Shetland, 1915).

PEREGRINE FALCON IN SURREY.—Mr. H. E. Pounds writes that on December 20th, 1934, he saw a Peregrine Falcon (*Falco p. peregrinus*) on a heath in south-west Surrey. It was sailing slowly overhead at a fair height and he obtained a clear view of the pale cheeks and moustachial streaks. It circled twice, then glided away on a northerly course in the direction of Elstead.

RUDDY SHELD-DUCK IN CHESHIRE.—Mr. Robert Storey reports that on June 9th, 1935, there was a Ruddy Sheld-Duck (*Casarca ferruginea*) on one of the tanks at Altrincham Sewage Farm. It was rather wild, so that it was not possible to get within fifty yards of it, and it had left before the evening. It is reported in case others are seen, but there is always the probability of these birds being "escapes".

SHOVELER IN SHETLAND.—Miss E. V. Baxter states (*Scot. Nat.*, 1935, p. 110) that she saw a drake Shoveler (*Spatula clypeata*) on April 20th, 1935, in North Yell. The bird has been reported from Fair Isle, but otherwise this appears to be its first recorded occurrence in the Shetlands.

RED-NECKED PHALAROPE IN MERIONETHSHIRE.—Mr. E. H. T. Bible informs Mr. H. E. Forrest that he and a friend watched a Red-necked Phalarope (*Phalaropus lobatus*) swimming on flood water near Towyn, on April 18th, 1935. When, after a time, it flew away, a second Phalarope, which had not been seen, got up and flew off with it. The species is rare on the west coast.

GREAT SNIPE IN SCOTLAND.—Mr. H. S. Gladstone records (*Scot. Nat.*, 1935, p. 28) the occurrence of two Great Snipe (*Capella media*) in Dumfriesshire, one at Lochmaben on August 18th, and another at Nether Hutton on September 6th, 1934, while Mr. C. Cairnie states (*t.c.*, p. 25) that one was received by a game dealer from Peterhead, in fresh condition, on

September 19th, 1934. Miss W. M. Ross also records (*l.c.*, p. 54) that one was picked up dead near Dulnain Bridge on August 20th, 1934.

COMMON TERN IN SHROPSHIRE.—Mr. H. E. Forrest reports the visit of a Common Tern (*Sterna h. hirundo*) to the Severn at Shrewsbury, where it stayed three days from May 1st, 1935, and remarks that nearly all previous occurrences have been at the same time of year.

ARCTIC SKUA REPORTED BREEDING IN WEST INVERNESS-SHIRE.—Mr. G. Waterston states (*Scot. Nat.*, 1935, p. 49) that he was reliably informed that a pair of *Stercorarius parasiticus* had bred for six years on a flat peat bog two miles from the coast, but the birds had not returned in 1934 when he visited the locality.

QUAIL IN HEREFORDSHIRE AND SHROPSHIRE.—Mr. H. E. Forrest reports that a Quail (*Coturnix c. coturnix*) was killed against telegraph wires at Brampton Brian on May 31st, 1935, and that a nest with eleven eggs was found in a hayfield near Shrewsbury on July 8th, 1935.

IVORY-GULL IN ELGIN.—Miss W. M. Ross records an Ivory-Gull (*Pagophila eburnea*) seen off the coast of Elgin on January 17th, 1934. (*Scot. Nat.*, 1935, p. 54.)

KITTIWAKES NESTING ON A BUILDING.—Mr. A. Thorburn states (*Scot. Nat.*, 1935, p. 50) that at Dunbar (Haddington), in June, 1934, he observed three nests of Kittiwakes (*Rissa tridactyla*) on window ledges at a considerable height from the ground, in a disused warehouse overlooking the harbour.

LETTERS.

SCARCITY OF MIGRANTS.

To the Editors of BRITISH BIRDS.

SIRS,—There is a remarkable drop in the numbers of Swallows, Martins and Swifts in Shropshire this year. Several of the usual nesting places are void of birds. One or two pairs of Swifts nest regularly in the roof of my house; this year there are none. A terrace at Shrewsbury is frequented by fifteen or twenty pairs; this year I have not seen more than six Swifts there at any time, though I pass every day and have looked out for them. One or two pairs of House-Martins nest on a neighbouring house; there are none this year. The only Warblers present in average numbers are the Willow-Warbler and Whitethroat. One or two Nightingales frequent Pulley Common; there are none this year. Yet, curiously enough, I located two pairs at Bognor (four miles distant) where I have never known them before.

H. E. FORREST.

P.S.—Since writing the above the Swifts at my house arrived on the 17th, a full month late, and have nested as usual.

REGULAR FEEDING-TIME OF A MARSH-TIT.

To the Editors of BRITISH BIRDS.

SIRS,—When I lived in Epping Forest, Essex, and fed birds throughout the year, both from the hand and a saucer, I was, like Mr. Marples (*antea*, p. 45), impressed by the regularity of the times of their visits. During one May month, I jotted down daily the exact time of the evening meal of an unusually tame female Marsh-Tit. She came almost invariably on the stroke of 8.15 p.m. and always between 8.10 and 8.20. No doubt the hour coincided with the cessation of her duties in the nest.

A. HIBBERT-WARE.

OYSTER-CATCHERS AND LIMPETS.

To the Editors of BRITISH BIRDS.

SIRS,—The note by G. B. Gooch (*antea*, Vol. XXVIII., p. 351) prompts us to bring to notice another method by which limpets are attacked. Though we have no direct proof, there is strong circumstantial evidence that Oyster-Catchers (*Hæmatopus ostralegus*) are concerned.

During March, along Plymouth breakwater, a number of shells were found of limpets (*Patella vulgata*), which had evidently fallen recent prey to birds. The shells, both large and small, all had an irregular hole in the apex, as though broken through by blows straight from above. Many still had fresh pieces of the animal still adhering to them, providing proof that the limpets had been attacked while alive. One specimen, indeed, only half eaten out, was still firmly attached to the rock by the half of the foot that had not been eaten away.

It seems clear that the particular kind of damage done to the shells could only have been the work of a bird with a bill of the type possessed by the Oyster-Catcher. This species, it may be said, regularly frequents the area, and a considerable flock was seen on the day the limpets were collected. The only thing that is, perhaps, a little surprising, is that *any* bird could produce sufficient force to penetrate the thicker shells, for the largest specimens had been successfully attacked.

We are anxious to acquire information on the feeding of shore birds on limpets, winkles, and other molluscs, in an attempt to arrive at some understanding on the ecological relationships of the two groups—on the one hand to decide how far birds are responsible for mortality among molluscs, and, on the other, how far the distribution of shore birds is determined by special food supplies. A case which has particularly forced itself on our notice applies to the common winkle (*Littorina littorea*). Empty shells are often found in this district which have been chipped open by a number of small fractures, starting at the lip, and strongly suggesting the effect of biting or pecking. Live specimens, also, are found, which have had similar fractures, but have subsequently repaired the shell. Such fractures are quite different from those which result when the shells are dropped from a height. Judging from the localities in which these shells are found, we conclude that this is most likely to be the work of birds, but as to which species we have no hint, and we would be glad to hear of any direct observations which may throw light on the matter.

May we venture to bring the above to the notice of your readers who may have opportunities of observing the feeding habits of birds along the shore?

G. M. SPOONER.

H. B. MOORE.

MARINE BIOLOGICAL ASSOCIATION,
PLYMOUTH.

The Nature of a Bird's World. By Eliot Howard. (Cambridge University Press). 7s. 6d. net.

A NEW book by Mr. Eliot Howard will be welcomed by all discerning observers of birds. We may confess to a little disappointment on finding that it was not a critique of the recent discussions on territory, which we still wish that the author would write, but Mr. Howard evidently considers that the territory theory can take care of itself, and in his latest work he is concerned with the fascinating but even more difficult subject of the avian mind.

It is doubtful whether the problem of the nature and workings of minds other than, and probably differently constituted to, our own, can ever in the nature of things be more than imperfectly solved, but it is perhaps not too much to hope that critical and sympathetic study and experiment may some day lead to a picture of the mental life of the higher animals upon at least the outlines of which all animal psychologists can agree. That time, however, certainly seems rather remote at present, and there are still wide divergencies of interpretation amongst students of animal behaviour, though an increasing tendency is noticeable towards a less narrowly mechanistic interpretation than was prevalent a few years ago. It has come to be widely recognized that much of the earlier experimental work on animal learning was vitiated by the problems set being too complex and bewildering and too foreign to the general run of the animal's experience to constitute fair tests, and consequently led to their mental capacity being assessed at too low a level, and in recent years an important school of thought has developed, represented by such men as E. S. Russell and Bierens de Haan, who insist that, although much in the actions of animals may be reflex and automatic, to seek to interpret their behaviour solely in terms of physical stimulus and response to the exclusion of processes of an essentially mental order is to give an entirely false picture of the animal mind.

With the conclusions and point of view of such investigators Mr. Howard's have much in common. His discussion of the "Nature of Bird's World" is in fact a fuller development of the thesis with which readers of his "Introduction to the Study of Bird Behaviour" will already be familiar, that the behaviour of a bird, for all the apparent automatism of much that it does, is inexplicable in terms solely of mere passive response to stimulation and only becomes intelligible through the recognition of a control and direction of activity which is essentially mental, and is itself a source of action independent of, though working in close relation with, sensory experience.

The author discusses first the physical basis of the bird's "world" and emphasizes that the reactions of the breeding season do not necessarily follow one another in an invariable order and cannot therefore be regarded as a sequence of cause and effect. They are dependent on internal changes in the body and often one reaction which succeeds another has no direct relation to it. The rhythmical fashion in which actions follow one another is a feature of bird behaviour and each one maintains the bird so long as the rhythm lasts, though it may be superseded by a subsidiary, or, as the author calls it, a false reaction, which presently may become the dominant one. In this way "a bird may do two or three things in quick succession, and do them well".

The bodily changes with their corresponding kinds of activity are adjusted to the meteorological conditions which are normal for the time of year when the change occurs. But conditions in the outside world are rarely stable, and unfavourable weather, by lowering the intensity of response, may react detrimentally on breeding. It is

suggested in this connexion that false reactions may have value by enabling the bird to respond more quickly, oftener, and to weaker stimulation.

The second chapter deals with the conclusion to which observation and experiment alike point, that under the influence of different bodily states the bird lives in so many different "worlds", so many different states causing its whole pattern of behaviour and its reactions to the same objects to be different at different times, a territory world, a sexual world, a feeding world, a brooding world and so on. This, and the succeeding chapter, show some striking contacts with the point of view of such observers as Russell, for example, in the stress laid on the purposive character of such reactions as nest building, the striving or seeking for materials or a site which are not in the birds' sensory field at all to begin with, and the impossibility of accounting for its actions as a sequence of mechanical responses to external stimuli.

The final chapter deals with learning and incidentally introduces some important remarks about territory. The way in which birds form fixed routines and seem to be dominated by them is familiar. It shows itself in the building of platforms and the shells of nests in the early part of the breeding season, but presently the bird spontaneously breaks the routine and starts afresh. The story of a Moorhen which had a routine pathway from its pond to the meadow where it fed, but when the provision of sufficient food for the young became urgent took a short cut over the hedge which completely cut it off from any sensory experience of the meadow so long as it was on the pond, shows again that birds are not bound by long-established routines and also that there must be a mental factor in their behaviour, since it frequently has reference to things outside their immediate sensory experience. The same mental element is evident in the fact that the location of shells and platforms once built is not forgotten, for in due course the bird will return to one of them, not necessarily the last made, and complete it, and it appears again in the bird's behaviour with reference to its territory. Experiments are liable to mislead because the experimenter cannot reproduce the internal states which under natural conditions are fundamental in influencing behaviour. Consequently there is a danger of their over-emphasizing the automatism and obscuring the adaptability of the bird's behaviour.

It is impossible in a review to do more than indicate in a quite sketchy manner the ground which Mr. Howard covers. The book is frankly not all easy reading and requires some concentration to do justice to the argument, but every serious student of bird behaviour will find it well worth the trouble of digesting carefully and rich in food for thought. But the reader must not expect to find a cut-and-dried formal theory of bird behaviour, for the author expressly disclaims any intention of attempting to produce such a thing. His book is a record of the reflections of a penetrating observer groping towards some measure of understanding of what must probably always remain, in some degree, a mystery.--B.W.T.



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CONTENTS OF NUMBER 4, VOL. XXIX, SEPTEMBER 2, 1935.

	PAGE
A Black Wheatear's Nest. By John Armitage	94
The Courtship of the Red-backed Shrike and the Woodchat. By Rev. F. C. R. Jourdain	95
The Index of Heron Population, 1935. By E. M. Nicholson	98
Colour of the Bill and other Notes on the Twite. By Fred Taylor	102
Movements of Manx Shearwaters. By R. M. Lockley	105
Descriptions of Nestlings of some Rare British Birds. By John Armitage	108
Notes :—	
Some Incubation- and fledging-Periods (Miss W. M. Ross) ...	111
Immigration of Crossbills	112
Diptera as Food of Starling and Rock-Pipit (L. Parmenter) ...	113
Blue Tits feeding Young Robins (W. S. Lonsdale)	113
Song-Thrush Laying Nine Eggs (H. E. Forrest)	115
Unusual Food of Song-Thrush (G. Marples and E. C. Wallis) ...	115
Black Redstarts in Gloucestershire (Miss S. M. Butlin)	116
Mute Swans Attacking Bullock (R. W. Patrick)	116
Grey Lag-Geese in Kent (L. Parmenter)	116
Breeding Places of Fulmar Petrels in Sutherlandshire (D. B. Kirke)	117
Fulmar Petrels probably Breeding in Pembrokeshire (W. A. Cadman)	117
Black-necked Grebes in Surrey in April (H. J. Hoffman) ...	117
The Coot as a Migrant (G. R. Humphreys)	118
Nesting Habits of Red-legged Partridge (Col. R. Sparrow) ...	118
Short Notes :—	
Scarce Birds in Forth. Greenland Redpoll at Isle of May. Wood-Larks in Lanarkshire. Great Grey Shrike in Wiltshire. Black-tailed Godwit in Merionethshire. "Incubation" by both Cock and Hen Common Partridge. Blackbird's Nest with Eight Eggs (<i>correction</i>)	119
Letter :—	
Census of Nightingales (Capt. G. E. Took)	121
Views :—	
Local Reports	121



A BLACK WHEATEAR'S NEST.

BY

JOHN ARMITAGE.

(Plate 4).

WHILE in the Sierra de Ronda, south Spain, on May 29th, 1935, I noticed a female Black Wheatear (*Enanthe l. leucura*) on a roadside pile of stones. The bird was reluctant to leave and evidently had a nest near at hand. A piece of dead grass projecting from a small hole in the rock face above the road disclosed the site. The nest was made of grass and goat-hair with a lining of Chough feathers, and could not be inspected until three of five stones placed there by the bird had been removed. Inside was the nestling described on another page, and three eggs—obviously incubated but showing no signs of chipping.

Towards the end of that day I revisited the nest and saw that an egg was missing, but another had just hatched, the down on the nestling being matted together. This suggested a period of about thirteen hours between the hatching of one egg and another. The nest was examined four days later; two young only were being brooded by the female, and the last egg had vanished. The male arrived and began to display anxiety, while the female alighted on the wayside litter, flying from stone to stone and growing so bold that I exposed several films at a range of under twelve feet, one of which is reproduced showing her in characteristic attitude with outspread tail.

The road was practically deserted and the site a remote one; human interference was very unlikely, yet the long period between hatching of first and second of the brood and the disappearance of two eggs at different times was certainly peculiar, and one is left wondering if the Wheatear removed the eggs herself.



Female Black Wheatear, Sierra de Ronda, S. Spain, May, 1935.
(*Photographed by John Armitage.*)

the bill was directed downward. In this position the grey crown, chestnut mantle and bold contrasts of tail coloration became prominent. After a moment's pause he resumed the upright stance and repeated the bow three or four times. This was followed by attempted coition, both birds flying off a short distance, when the bowing was repeated in exactly the same way. The action bore some resemblance to that of the Pigeons and Turtle-Doves, but was of course not performed on the ground but from a perch.

During the present season, while staying in Somerset, Miss M. and Miss F. Penrose informed me that they had seen the courtship of this species, and gave me the following details before I informed them of what I had myself seen.

"The hen was noticed on the top of a small bush in Holford Combe, Somerset, on the afternoon of May 16th. She flew up the hillside and settled on a dead branch. We then noticed the cock, which was quite close to her and evidently excited. He flew to a twig a foot or so away and standing in an erect position made a series of stiff, rapid bows, accompanied by chirping. Meantime the hen remained still, apparently ignoring him. He flew to another twig and repeated his performance without success. At last, leaving the hen, he flew away out of sight, but returned in a few moments, and we saw him present her with some insect which she opened her bill to accept. Pairing then took place, and the two birds flew off together out of sight, calling to one another. During the whole episode the cock seemed unaware of our presence, but the hen, although not shy, had seen us at the outset."

There is one other published reference to this subject which occurs in Mr. Eliot Howard's *British Warblers*, I., p. 13. He says that in some cases the attitudes adopted by courting birds are ludicrous, and instances the Red-backed Shrike: "When perched upon a branch beside the female he raises his tail, lowers his body, bends his neck downwards and his bill upwards in a comical, almost imploring manner."

There is obviously some variation in the courtship of individual males, but if we exclude Kearton's rather florid and not very convincing account, it will be seen that there is much in common between the observations of the Misses Penrose, Mr. H. Eliot Howard and myself. The main difference consists in the fact that his bird turned the bill upwards instead of downwards. It is possible that this may have been due to the presence of the branch in front of the bird at the time.

In this connexion it is interesting to note that the courtship of the Woodchat (*Lanius s. senator*) bears considerable resemblance to that of its ally. In my notes for May 4th, 1915, I find the following: "The male has a curious little song: the feathers of the head are puffed out, and a rapid, bobbing motion of the head takes place, the body in the meantime being raised and stiffened."

Mr. H. F. Witherby also states in the *Ibis*, 1928, p. 589, that "besides its soft warbling song, the Woodchat utters some curious notes when courting and at the same time constantly bows its head from the neck in a slow nodding kind of manner."

Mr. B. W. Tucker also observed the courtship of the Woodchat in south Spain on April 10th, 1935, and has kindly supplied the following description.

"The courtship performance of the male Woodchat was observed by Messrs. H. J. R. Pease, G. K. Yeates and myself on bushy ground on the outskirts of open cork wood near Vejer. The birds sat on a bush, the male confronting the female and going through the most curious bobbing performance, alternately stretching himself up to his full height so as to present a peculiarly attenuated appearance and then shrinking down again into a more normal attitude, the movements following one another in quick succession, accompanied by a bobbing action of the head, and being kept up without a break for I should think 10 or 15 seconds or sometimes more. In the intervals, but not to the best of my belief during the actual bobbing (though I find I did not specifically note the point in writing at the time), the bird sang freely. I did not observe coition or any other display action than the above."

PUBLICATION OF THE BRITISH TRUST FOR
ORNITHOLOGY.

THE INDEX OF HERON POPULATION, 1935.

BY

E. M. NICHOLSON.

IN the April number of *British Birds* (Vol. XXVIII., pp. 332-341) a description was given of a new Index of Heron Population which had been compiled on the basis of returns sent in by observers all over England and Wales co-operating through the British Trust for Ornithology. It was then stated that the experiment of issuing a national index in order to measure fluctuations in the breeding stock of Herons (*Ardea c. cinerea*) would be continued for a number of years. Owing to the help of a large number of observers it has been possible to improve the sample count in 1935, and to get out the results more promptly.

It is disappointing to have to record that the numbers of breeding Herons, which in 1934 were appreciably above the 1928 level, have met with a setback during the past year. The number of occupied nests is, however, not appreciably lower than in 1928, taking the country as a whole, and there is some reason to believe that 1928 was itself a good year compared with some that had gone before it. There is therefore no cause for alarm, and such fluctuations as have come to light are less serious than might have been expected. For convenient comparison the table already given (*B.B.*, XXVIII., 336) is here repeated with the latest figures added to it:—

PROVISIONAL INDEX OF HERON BREEDING POPULATION.
(England and Wales: 1928—100).

Year.	Index.	Number of Nests in sample.	
1928	100	1,032	
1929	85	487	} N.B.—The sample for 1929-33 is not adequate and these figures should be treated with special caution.
1930	92	566	
1931	111	277	
1932	100	223	
1933	104	360	
1934	102	1,196	
1935	99	1,166	

CHANGES IN HERON BREEDING POPULATION BY REGIONS 1928-1935



more than 10 per cent increase

0 - 10

0 - 10 decrease

more than 10

N.B —Changes are shown for each of the eight regions as a complete unit and not for separate counties some of which, if taken alone, would not show the same trend as the regions to which they belong.

It will be noted that the size of the sample for 1934 and 1935 has been substantially increased by the bringing in of a number of additional heronries in Wales, the Midlands, Eastern and South-west England which for various reasons could not be included before. Actually the index is reduced to 99 by the merest fraction: had the total been increased by a single nest, or had the index been based on exactly the same series as last year the 1935 figure would be 100 instead of 99, so for all practical purposes we are back at the 1928 level, which also seems to have been the level of 1932 and may be taken, pending further experience, as the normal for breeding numbers of Herons in England and Wales.

Regional Changes.

It is already plain that fluctuations in different parts of the country are liable to be much more serious than fluctuations for England and Wales as a whole, because while Herons are increasing in one district they are losing ground in another. The remarkable way in which these fluctuations cancel out is now emerging. Out of three dozen counties represented in the sample only two showed decreases both for the period 1928-34 and the period 1934-35; six showed increases for both periods, and all the rest showed an increase followed by a decline or *vice versa*.

The regions with the stablest Heron population at present seem to be East England and the Thames Drainage Area, both of which have varied by less than 10 per cent. for the three years 1928, 1934 and 1935. The least stable is Wales and West England, which has varied as much as 45 per cent., followed by South-west England, which has varied by 37 per cent.

Of the four regions which last year recorded substantial gains over 1928 only one—the North-west—has shown further progress, and that is entirely due to a doubling of numbers at one heronry, the rest of the group remaining at about the same level. The other three of these regions—Midlands, South-east, and Wales and the West—have all had setbacks. All four regions, nevertheless, stand between 10 and 20 per cent. above the 1928 level. On the other hand, the three regions which last year showed heavy declines below 1928 numbers have all experienced some recovery, although only one (North-east) has regained the 1928 level. The other two—East and South-west—remain below it, South-west being still as much as 30 per cent. below par. The remaining region, the Thames Drainage Area, which last year stood nearly at

the 1928 level, has now dropped sharply to a figure some 8 per cent. below it. That this decline is real and serious is shown by the fact that it is shared among eight out of the fifteen Thames heronries which were extant both in 1934 and 1935: only the continued expansion of the new Walthamstow colony has saved the situation from being worse. An independent check on the fortunes of an entire area has been supplied by the census of Sussex Heronries undertaken by Mr. E. M. Cawkell, which gives a mean total for Sussex of 277 nests in 1935 against the revised 1928 figure of 296—a fall of more than 6 per cent.

In view of these divergences between the fortunes of the different regions an attempt is being made further to strengthen the sample in future by bringing in heronries in some of those counties which have not so far been represented in the index—that is, Hertfordshire, Bedfordshire, Westmorland, Durham, Staffordshire, Worcestershire, Gloucestershire, Monmouth, Cornwall and several Welsh counties.

In conclusion it should be emphasised that the share of the writer has been confined to preparing this report. The work on which it is based has been done by more than fifty observers enlisted by W. B. Alexander, M.A., of University Museum, Oxford, and it is to these that the credit for the success of the experiment is due.

COLOUR OF THE BILL AND OTHER NOTES ON THE TWITE.

BY

FRED. TAYLOR.

THE Twite (*Carduelis f. flavirostris*) is a common summer resident in a variety of localities on the moor-edges of the Pennine Hills, and I have for over fifty years had excellent opportunities for observing the nesting habits of the species.

At a very moderate estimate I have seen well over two thousand nests. During the present season, which I consider a poor one, I have seen about fifty.

Wandering parties of Twites occur on all our local moors throughout the winter, and during last winter (1934-5) one could see at any time, on a particular moor, parties of up to forty birds on ground where the species nests every summer. On sight records alone I considered that all these birds had whitish and not yellowish bills, but after investigations made during the present summer I have had to modify my views somewhat. Accepting the adage that "a bird in the hand is worth two in the bush", I set out to capture breeding Twites at the nest.

My experiences were somewhat peculiar and unexpected. The first nest visited was in a dry stone wall; I could look down on the sitting bird, and saw that she had a black bill. Capturing her I found that both upper and lower mandibles were coated with a black sticky substance, which had evidently adhered whilst feeding.

A second bird caught on the nest had her bill similarly coated.

Visiting another locality three more female birds were caught on their nests; they also had their lower mandibles coated.

This material was, however, easily removed, exposing in each case a bill whose general colour is pearl grey with a slight tinge of lemon yellow—the exact colour of the dried fruits of honesty (*Lunaria*) which I have used to check all the bills of Twites examined.

The tip of the upper mandible is almost black, really a dark madder brown, which fades away from the tip.

Adult males examined have the bill coloured exactly like that of the female. The newly-hatched nestling has a bill which, owing to its delicate structure, shows the flesh colour through from the inside of the mouth; the mouth is a rich red, the tongue also, but its basal tips are paler.

The external flanges are white, except behind the gapes, where they are a rose red, as the inside of the mouth.

This rose red of the mouth deepens to almost purple as the young bird develops.

As the bill hardens it assumes a pale yellow colour, which deepens somewhat in the fledgling, but appears to be lost in the course of a fortnight or so after it has left the nest, when it answers to the description of the adult male and female as given above.

These youngsters have also got a dark tip to the upper mandible, which tends to give it a dusky appearance.

The egg-tooth is retained until (and possibly after) the juvenile has left the nest.

It may be of interest to note that in the live nestling Twite the skin over the crop is so thin and transparent that the character of the food inside the crop can be plainly seen. By this means I noted that the first food given on the second day of hatching to a nestling consisted of seed and not insects, which I should have expected at that early age.

I endeavoured to obtain a record of the incubation-period by visiting a nest each day and taking the eggs as they were laid and substituting others until the full clutch was laid. The seven eggs I then divided between two birds, giving one three eggs and the other four eggs. These were placed in the two nests at 2.30 p.m. on June 27th, and the first young one hatched early on the morning of July 10th, this giving a period of twelve and a half days. Unfortunately the nests were subsequently disturbed by bilberry gatherers and I was unable to record the hatching of the other eggs.

I also had a nest under close observation to observe the fledging-period and noted that the young of this brood left the nest fifteen days after they were hatched.

I think that the number of eggs in a clutch, and the dimensions given by various authors are from selected sets in collections; and may not give a correct average.

Having taken dimensions of all the 'Twites' eggs since the end of May they may be of some interest.

The clutches comprise: six of 5; fourteen of 6; and three of 7; a total of 135 eggs.

Clutches in late April and early May are more often 4 and sometimes only 3.

The average dimensions of the 135 eggs are 17.5×12.9 mm. Maxima: 20.0×12.8 and 17.8×13.6 . Minima: 16.1×12.1 mm. Two abnormally small eggs measure 15.4×12.2 and 15.8×11.5 mm.

During incubation, as at all times, the male Twite is very attentive to his mate ; frequently visiting and feeding her at the nest ; sometimes calling her off, then feeding her ; or taking her away to feed on the neighbouring grass lands.

I have never detected him on the nest ; and do not think that in a general way he takes part in the incubation of the eggs, or the brooding of the young.

From close observation I believe that the nest is built entirely by the female, and she is invariably accompanied by the male.

Incubation usually commences with the third or fourth egg, and laying continues daily until the clutch is completed ; the young in many nests show a difference in age of 3 or 4 days ; and the earliest hatched leave the nest before the later ones, the parent birds continuing to feed them for at least fourteen days after leaving the nest.

MOVEMENTS OF MANX SHEARWATERS.

BY

R. M. LOCKLEY.

IN 1934 Mr. C. Wontner-Smith made the welcome offer to ring large numbers of the Manx Shearwater (*Puffinus p. puffinus*) on Skokholm, Pembrokeshire, in the hope that some recoveries abroad might result. Recoveries of breeding adults where ringed on Skokholm had already proved that the same individuals and in several cases, the same pairs, returned each year to the same holes in the breeding-burrows. The announcement (*antea*, p. 75) of the recovery abroad of five of the 1,618 Manx Shearwaters ringed on Skokholm in 1934 by Mr. Smith is therefore of special interest.

The only previous record of a British-breeding Manx Shearwater recovered abroad is of RS.2294, which was captured near St. Nazaire, north of Loire, France (*B.B.*, Vol. XXVII., p. 247). This bird had been ringed as an adult at a breeding-hole on Skokholm on April 1st, 1933, yet later in the same month, in 1935, five birds (RV.7507, stated in error to have been ringed by Mr. Smith—*antea*, p. 75—was ringed by the writer) which had been ringed on Skokholm as adults by Mr. Smith in July, 1934, were recovered in the south of the Bay of Biscay. The question at once arises as to why these adults should be so far from their breeding-grounds at a time when egg-laying is about to commence. There is no known breeding station nearer to the Bay of Biscay than the island of Annet in the Scillies.

The Manx Shearwater arrives on Skokholm in February. I feel sure that the first arrivals are the older, already well-experienced breeders which, as is now well-known of birds generally, are the first to respond to the seasonal influence in returning to the breeding site. (A female Manx Shearwater, killed on Skokholm on February 2nd, 1931, proved to have an oviduct well bulged by the passage of an egg or eggs laid in a previous year or years. This bird was examined by Mr. H. F. Witherby). Since the first eggs of the Manx Shearwater are laid during the last week in April and since for some weeks beforehand the paired birds constantly visit and frequently remain by day in their breeding burrows, it may seem curious, remembering that they were ringed as adults, that at this period two of Mr. Smith's birds were found off the Basses Pyrénées and two off Vizcaya, all four some 600 miles from Skokholm. The fifth bird and latest recovered, RV.6909, was nearer home, at Ushant, on April

23rd, 1935. That these birds at this time had travelled so far south from Skokholm on a cruise in search of, or following, a food supply, is admittedly rather improbable, though it is a possibility that cannot be ruled out in our present slender knowledge of this mysterious bird. Mr. W. H. Thorpe's recent (*antea*, p. 43) observation of a heavy migration of Manx Shearwaters to the south-westwards in April, off Land's End is, though inconclusive, of interest in this respect.

There is, however, another possibility which I would like to put forward: that the birds recovered in the Bay of Biscay were two or three years old (i.e. one or two years old at date of ringing) birds which were late in responding to the seasonal stimulus to return to the breeding-grounds; that is to say their breeding organs were in all probability late in maturing *because they had not bred before*. They might actually have been on their way north when captured, we may conjecture, since later in the same month RV.6909 was caught at the entrance to the English Channel. My reasons for putting forward this suggestion are these. It is my experience that from perhaps the end of June onwards, the breeding grounds of the Manx Shearwater receive a considerable accession of non-breeding adults. These late arrivals do no more than perform courtship rites, some occupying crevices or slight burrows or more often using no cover at all, and at night only, the great majority returning to the sea before dawn. These birds are particularly easy to catch and ring as they sit about on the ground. They make little attempt to enter holes for the good reason that most of the holes are already occupied by breeding adults hatching or feeding young. It is as if the non-breeders were familiarising themselves with the breeding ground ready for a future season. I have examined the breeding organs of several of these "non-breeders" and found them very small and undeveloped. A pair caught in the performance of "billing and cooing" in a shallow burrow were submitted to Mr. H. F. Witherby, who found them to be male and female, the testes of the former and the ovary of the latter were quite small and undeveloped and the oviduct of the female was thin and straight and had no doubt never passed an egg.

It seems likely, therefore, that there were a great number of these "non-breeders" among the 1,618 Manx Shearwaters ringed by Mr. Smith in July, 1934. These "non-breeders" would naturally not be the first to return to Skokholm (or other breeding-grounds) in the following spring, but as I have suggested, would arrive progressively earlier each year accord-

ing to their age. It is probable that the birds found in the Bay of Biscay in early and mid-April would have arrived at Skokholm (or other near breeding-ground) some time late in April or in May, and commenced breeding then. Fresh eggs are found up to the beginning of June on Skokholm.

This supposition (that the birds recovered abroad were non-breeders of 1934) is confirmed in some degree by the recovery of RV.7507 off Vizcaya, Spain, on March 31st, 1935. I ringed this bird on August 13th, 1934, having caught it in the midst of the colony occupying a group of burrows close to my house on Skokholm. It had at that date arrived literally "out of the blue"—a total stranger in this group of breeding adults, all well known to me and marked with rings, some of which had returned to this burrow regularly each year since 1929 and 1930. It was obviously a non-breeder, and hence its subsequent recovery in the following spring 600 miles from Skokholm, when others of this colony were already occupying the old burrows, fits in well with my theory that the non-breeders of the previous year return late to the breeding-grounds.

In like manner the recovery, mentioned above, of the breeding adult (RS.2294, ringed in this same colony outside my house in April, 1933) at the end of the breeding season on August 28th, 1933, off the mouth of the Loire, France, is in harmony with this same theory, and further confirms the belief in the southward migration of this species.

DESCRIPTIONS OF NESTLINGS OF SOME RARE BRITISH BIRDS.

BY

JOHN ARMITAGE.

THE following descriptions were taken this season (1935) in southern Spain and Morocco. Some are, I think, of nestlings not hitherto described, and the remainder may serve as supplementary, or including variable details.

MELODIOUS WARBLER (*Hippolais polyglotta*), nestling one day old; near Ronda, May 28th. Down absent. Mouth inside deep yellow, tongue deep yellow with two dark brown spots, externally flanges pale yellow.

ORPHEAN WARBLER (*Sylvia h. hortensis*), nestling a few hours old, thrown on rim of nest by young Cuckoo (*Cuculus c. bangsi*); near Ronda, May 30th. Down absent. Bill yellow with grey tip. Mouth inside yellow, tongue yellow tinged with grey, unspotted, externally flanges yellow.

SARDINIAN WARBLER (*Sylvia m. melanocephala*), nestling five or six days old; Cap Spartel, Morocco, May 14th. In short pin-feather, down absent. Bill leaden grey with yellow tip. Eyes open, eyelids brown, legs pinkish-purple, claws leaden. Mouth inside dull orange-yellow, tongue yellow, unspotted, externally flanges pale yellow. A photograph of the adult female at this nest is here reproduced.

SUBALPINE WARBLER (*Sylvia c. cantillans*), nestling twelve days old; Sierra de Aracena, June 17th. This fully-fledged bird varied in two details from my previous descriptions: the two spots on the orange-yellow tongue were practically black instead of brown, and the eyelid was old gold instead of olive brown.

RUFOUS WARBLER (*Agrobates g. galactotes*), nestling nearly four days old; Sierra de Aracena, June 19th. Down absent. Bill pearly grey, under mandible paler than upper. Mouth inside bright yellow, tongue similar colour, unspotted, externally flanges ivory, gape large. Skin on body rather dark, almost leaden on the head and about the eyes, which were not yet open. Wings showed signs of pin-feathers; legs pale purplish-pink, claws ivory.

BLACK-EARED WHEATEAR (*Enanthe h. hispanica*), nestling about eight days old; Sierra de Ronda, May 23rd. Down

grey, long and fairly plentiful; distribution, inner supra-orbital, occipital, humeral, spinal and femoral. Bill pale purple. Mouth inside gamboge yellow, tongue similar colour,



Female Sardinian Warbler at nest, Cap Spartel, Morocco.
May 14th, 1935.

(The pale markings are due to sunlight.)
(Photographed by John Armitage.)

unspotted, externally flanges ivory. Feathers breaking through, and eyes open. Skin round eye brownish-grey; legs yellowish, claws horn.

BLACK WHEATEAR (*Enanthe l. leucura*), nestling about five hours old: Sierra de Ronda, May 20th. Down medium grey.

long and plentiful ; distribution, inner supra-orbital, occipital, humeral, spinal and femoral. Bill pale pink. Mouth inside yellow, tongue yellow and unspotted, externally flanges very pale yellow.

BLACK REDSTART (*Phœnicurus o. gibraltariensis*), nestling in pin-feather about eight days old ; near Ronda, May 23rd. Down dark grey, fairly long and plentiful ; distribution, inner supra-orbital, occipital, humeral, and spinal. Bill purplish-grey. Mouth inside rich yellow, tongue similar colour, unspotted, externally flanges ivory. Although stump of tail showed chestnut, the bird was still blind.

NOTES

SOME INCUBATION- AND FLEDGING-PERIODS.

THE following incubation- and fledging-periods which I have been able to ascertain this year in Inverness-shire may be worth recording.

CRESTED TIT (*Parus c. scoticus*).—April 12th, excavation of the hole in progress ; 14th, nest building begun ; 18th, 1st egg ; 20th, 3 eggs ; 22nd, 5 eggs ; 23rd, 6 eggs and bird sitting all day ; May 8th, 4 hatched between 1 and 2.15 p.m., 2 eggs infertile ; 26th, young left nest in early morning.

Incubation-period : 15 days.

Fledging-period : 18 days.

This is the longest incubation of Crested Tit I have known.

In my previously published record (*antea*, Vol. XXVIII., p. 228) the young hatched on the 14th day.

GOLDCREST (*Regulus r. anglorum*).—It was not possible to count the eggs as they were difficult to reach and could only be felt. May 31st, nest with eggs ; June 1st, bird not sitting ; 2nd, bird probably not sitting, but was always near the nest ; 3rd, bird sitting closely all day ; 10th, all eggs were hatched at 1 p.m., but might have been hatched the previous night.

Probable incubation-period : 16 or 17 days.

Fledging-period : 18 to 19 days.

SEDGE-WARBLER (*Acrocephalus schoenobaenus*).—June 2nd, 1 egg ; 4th, 3 eggs ; 5th, 4 eggs and bird sitting ; 19th, all the eggs were hatched at 6 p.m., but probably hatched about mid-day.

Incubation-period : 14½ days.

ROBIN (*Erithacus r. melophilus*).—May 9th, 3 eggs ; 11th, 5 eggs ; 12th, 6 eggs and bird sitting all day ; 25th, at 6.30 p.m. 4 eggs were hatched ; at 9 p.m. all eggs were hatched ; June 9th, young left the nest.

Incubation-period ; 13½ days.

Fledging-period : 14½ days.

COMMON WREN (*Troglodytes t. troglodytes*).—June 9th, 1 egg ; 13th, 5 eggs ; 14th, 6 eggs and bird sitting at 10 a.m. ; 29th, all hatched at 10 a.m. ; July 16th, young left nest in early forenoon.

Incubation-period : 15 days.

Fledging-period : 17 days.

WINIFRED M. ROSS.

IMMIGRATION OF CROSSBILLS.

IN the last issue (*antea*, p. 87) we asked for observations on Crossbills (*Loxia curvirostra*) and their numbers with dates and localities, as an immigration was in progress.

Judging by the reports received up to date Crossbills seem widely spread, but in comparatively small numbers, except in Norfolk, but it is as yet too early to judge and we have at present no records from Scotland. A good many correspondents remark that cones are very plentiful this year.

The following is a summary of the observations to hand:—

LANCASHIRE.—About three near Simmonswood, July 20th (E. Hardy).

STAFFORDSHIRE.—Several at Enville Common on June 30th (H. G. Alexander); also observed there on July 13th working larch cones (F. R. Barlow and H.G.A.), and on August 4th, when six were seen (C. Owen Silvers).

WARWICKSHIRE.—One flying over Selly Oak, July 12th, and two flying from ground there 15th (H. G. Alexander); several in Whichford Woods, July 14th, feeding on spruce cones and twigs and larch cones (H. G. Alexander).

WORCESTERSHIRE.—One flying over Upper Bittell Reservoir, June 20th (H. G. Alexander); three in Lickey Woods, July 9th, and about forty on 10th, and some at Barnt Green working larch cones (Misses C. K. James and M. Simpson); one at Blakedown on July 4th and three there on 21st (G. M. King); eight passed over Bewdley, July 11th, not seen since (J. S. Elliott); about fourteen, but probably more in all, as small parties frequently flying over, at Randan Wood, near Bromsgrove, from June 30th onwards, feeding in Scots pine and larches (F. Fincher).

HEREFORDSHIRE.—A party at Bishopstone, July 18th (H. A. Gilbert).

GLOUCESTERSHIRE.—Between forty and fifty near Cheltenham, July 15th to 19th, in larch woods (J. J. Cash); two Stanway, July 14th (G. Charteris).

LINCOLNSHIRE.—Five Leadenham in July (J. S. Reeve).

NORFOLK.—Two flocks (twelve and eight) at South Wootton, Kings Lynn, July 6th, and for a fortnight after small parties flying over. On July 29th a large fir-wood near Sandringham was full of Crossbills from end to end; there must have been hundreds. In a roadside belt of Scots pines near there were also many. On July 31st the wood was deserted, but near the belt many were flying about. On August 7th there were a few birds left at the belt and a few at another place between the two, but none in the wood. On August 13th all three places were deserted and only six *freshly* worked cones were to be found (N. TRACY).

NORTHANTS.—One Brampton Ash Woods, August 16th (E. Hardy).

HERTS.—Two at Hemel Hempstead, August 1st (C. Oldham).

BUCKS.—Four at Ashridge, July 25th, in mixed conifers (C. Oldham).

BERKSHIRE.—Several near Newbury, August 5th (G. Brown).

SURREY.—Green cones of Scots pines worked at Wentworth early August (D. H. Meares and H. Lynes); a few cones worked and a bird heard at Chobham, August 17th (E. M. Nicholson and H. F. Witherby); three Milford, July 23rd (F. M. Luce); one and others heard Ockham Common, and four Banstead, July 26th (R. M. Lockley); small parties

(3-5) usual) all suitable Scots pine woods Tilford, Churt, and Frensham, since late June, previously a few were still present from last invasion (L. S. V. Venables).

HAMPSHIRE.—Heard at Southbourne, Bournemouth, July 5th, and about thirty in small parties (two to five) kept passing, evening, July 6th, and some seen almost daily to end of August (F. C. R. Jourdain); twenty to thirty New Milton, July 28th, in Scots pines (R. E. Coles); ten to twenty at Shedfield, early August, feeding on new cones of Scots pine (Miss G. K. Medicott in *Times*).

SUSSEX.—Ten Battle, June 25th, July 3rd, and one heard 24th; two Cuckfield, July 10th (H. Whistler).

KENT.—About seven at Boxley, July 20th, and still there August 5th (J. R. Hale); many in Sevenoaks district, August (J. M. Harrison); common in Westgate district between June 22nd and July 12th (J. G. Harrison in *Shooting Times*).

IRELAND.—At Rocklow, Fethard, Tipperary, about eighteen on July 13th, and on 16th and 17th many, one flock of sixty counted and pairs and small parties numerous. Crossbills have bred here for many years but "restlessness and noisy behaviour of these flocks convince me that an immigration is on". Feeding on new cones of spruce (C. J. Carroll).

ABROAD.—*France*—M. G. Olivier writes of considerable numbers in small parties in Seine-Inférieure and Eure in early July, feeding particularly on green cones of Scots pine. M. Olivier also observed a small flock in the Vosges on June 23rd. *Holland*—Small parties (about thirty birds in all) were seen on Texel by members of the Oxford Ornithological Society throughout their stay from June 29th to July 5th (P. A. D. Hollom).

DIPTERA AS FOOD OF STARLING AND ROCK-PIPIT.

On February 2nd, 1935, at the Blackwater Estuary, Essex, I watched a Rock-Pipit (*Anthus s. petrosus*) apparently capture small insects on the decaying vegetable debris at high water line. The only animals found there were several *Borborus* (*Trichiaspis*) *equinus* Fall. This dipteron breeds commonly in dung and decaying vegetable matter throughout the year and was probably being taken by the Rock-Pipit.

On May 5th, when collecting diptera on Arbrook Common, Surrey, I noticed several Starlings (*Sturnus v. vulgaris*) flying at and frequently capturing St. Mark's flies (*Bibio Marci* L.) which were abundant about the birches. L. PARMENTER.

BLUE TITS FEEDING YOUNG ROBINS.

TOWARDS the end of April this year (1935) a pair of Robins (*Erithacus r. melophilus*) built a nest on the top of a log nesting box in my garden in Hampshire. About a fortnight afterwards we noticed Blue Tits (*Parus c. obscurus*) going in and out of the box building a nest. The two pairs of birds did not appear to take any notice of each other at this time.

For fear of disturbing them I did not go near the nests until about the third week in May when the Robin had been

sitting about a week. The Robin's nest then contained five eggs and the Blue Tits' three eggs. The box had a removable front so that it was possible to examine the Tits' nest without disturbing the Robin's on the roof.



Nesting-box with front removed showing Blue-Tits' nest inside with Robins' nest on roof.

Shortly after this we observed both Tits in turn standing on the edge of the Robin's nest (when the owner was away) and pecking at it. On the arrival of the Robin there was a bit of a fight but eventually the birds settled down and we noticed no further friction. Although the Tits were observed going in and out of the hole no more eggs were at this time laid and the original three were well covered up.

Immediately the young Robins hatched the flying backwards and forwards of the parents feeding them caused intense excitement in the pair of Tits and they began, without interference from the parents, to feed the young Robins.

This continued for the whole time until the Robins were fully fledged and finally flew away.

In the meantime the three eggs of the Blue Tits remained in the nest and were, I noticed, entirely covered up with feathers.

We were wondering what would happen after the Robins flew away and, to our astonishment, the Tits returned to their nest, seven more eggs were laid, and in due course these seven were hatched out and the birds successfully reared and flew away. The original three eggs, however, did not hatch, and remained under the lining.

W. STANLEY LONSDALE.

SONG-THRUSH LAYING NINE EGGS.

A SONG-THRUSH (*Turdus e. ericetorum*) nested in a garden at Bayston Hill, Shrewsbury, and laid nine eggs in it (May, 1935). The cup of the nest was unusually deep. When incubation was well advanced the male bird disappeared: the hen deserted the nest, which was then removed. About ten days later the "widow" got a new mate, built another nest in the same place, and is now (June 19th) sitting on four eggs.

H. E. FORREST.

[There are two previous cases on record of nine eggs of this species in one nest, and half a dozen records of eight. In one case where nine eggs were laid all the eggs were small, almost dwarfs, but fertile. F.C.R.J.]

UNUSUAL FOOD OF SONG-THRUSH.

WATCHING a Song-Thrush (*Turdus e. ericetorum*) feeding in my garden in Hampshire on August 9th, 1935, I was surprised to see it leap up to the flowers of a lily and pull off a petal. This it proceeded to eat, first, by breaking up about one-third of the thick end, then by swallowing the remainder whole. The broad part of this was taken in first with some difficulty as the gape and throat were scarcely wide enough to admit it. But, shortly, only the tip of the petal remained protruding from the end of the beak, while the Thrush rested from its exertions beneath the plant. The lily is orange with dark brown spots and called, I think, *Lilium pardalinum*. Its alternate petals are 20 m.m. and 30 m.m. across the widest part and 110 m.m. long.

GEO. MARPLES.

WALKING through one of our fields at Harpenden, Herts., at the beginning of August, 1935, a Song-Thrush rose out of the grass a few feet in front of me unmistakably carrying in its bill a young mouse, of fawn colour, probably a small shrew-mouse or possibly harvest-mouse.

I should be very interested to hear if any of your readers have made similar observations in this dry weather with ground in fields and pastures baked hard.

E. C. WALLIS.

BLACK REDSTARTS IN GLOUCESTERSHIRE.

ON March 16th, 1935, an adult male Black Redstart (*Phænicurus o. gibraltariensis*) was seen in Frocester, in our garden and round the house, for quite half-an-hour at mid-day; it frequently came to the lawn after insects and retired to the roof of the house when disturbed.

Another was seen at Stonehouse—two miles from Frocester—on the G.W.R. station platform and buildings, on October 24th, 1930. S. M. BUTLIN.

MUTE SWANS ATTACKING BULLOCK.

WHEN fishing on the River Aln in the last week of July, I witnessed what seemed to me a rather unusual occurrence.

Two Swans (*Cygnus olor*) were floating on a pool a short distance below me, when a bullock from an adjoining field came down to the river to drink. The Swans almost immediately made an attack on it. With wings and necks extended, they half-flew, half-paddled towards the bullock, at the same time emitting a raucous cry. The river bank directly behind the bullock was fairly high, and though it seemed desirous of retreating, found it impossible to do so quickly. It turned towards the Swans, and met their attack by lowering its head and butting them. This battle went on for about five minutes.

After a peaceful interval of about fifteen minutes, the Swans again attacked the bullock, which, evidently desiring peace, proceeded further down the river, and got back into the field.

Probably the Swans had either eggs or cygnets in the vicinity, but I did not ascertain which. R. W. PATRICK.

GREY LAG-GESE IN KENT.

DR. N. F. Ticehurst has recorded (*antea* p. 84) Grey Lag-Geese (*Anser anser*) in Romney Marsh, three seen on April 7th, 1935. On April 14th, when with Messrs. R. C. Homes and H. A. Littlejohn, we saw six of this species fly westwards over the Lydd-Dungeness road and alight amongst some sheep and Gulls (Herring and Common). They commenced feeding in the pasture field and gradually moved westwards. By cautious, spiral approach, although in full view we managed to get within 80 paces and had excellent views of them in the brilliant sunshine. The white-nailed pink bill and pink legs were well seen through 40x and 35x telescopes.

L. PARMENTER.

BREEDING PLACES OF FULMAR PETRELS IN
SUTHERLANDSHIRE.

ON June 18th and 19th, 1935, I visited the islands Roan and Neave, which lie midway between Tongue and Bettyhill, Sutherland, and was very interested to find two colonies of Fulmar Petrels (*Fulmarus g. glacialis*) breeding there. There is a colony of about thirty on a ledge on the west cliff of Roan, and a smaller one of 10 to 12 on the east cliff of Neave.

On Roan I saw the birds sitting on ledges during the whole time (about seven hours) we were fishing just near and others were flying over the water. Owing to the swell it was not possible to approach close to the cliff, but the Fulmars could be seen plainly through glasses. On Neave they were more scattered, but as I saw them sitting on ledges during both days, I concluded they were breeding.

I should be interested to know if they have been reported as breeding there, as the nearest place mentioned in the *Practical Handbook of British Birds* is Dunnet Head.

The boatman told me they were also at Whiten Head, but I had no opportunity of verifying this. D. B. KIRKE.

[A considerable colony has bred for a good many years on Whiten Head, but we do not think either this or the colonies mentioned by Mr. Kirke have been previously recorded. Ed.]

FULMAR PETRELS PROBABLY BREEDING IN
PEMBROKESHIRE.

WHEN at the Stack Rocks, Pembrokeshire, on June 28th, 1935, I noticed three or four pairs of Fulmar Petrels (*Fulmarus g. glacialis*) on ledges. Unfortunately, I was unable to obtain conclusive proof of breeding, but two birds remained brooding on the same spot all the time I was there. Moreover these particular birds showed keen resentment when any other Fulmar settled or attempted to settle near them. I could not persuade these two birds to leave the ledge and was unable to see if either had an egg or young.

I understand that Fulmars have now been seen at this place for several years. W. A. CADMAN.

BLACK-NECKED GREBES IN SURREY IN APRIL

ON April 7th, 1935, whilst watching Little Grebes (*Podiceps r. ruficollis*) and other water fowl on a pond in Surrey, I saw a pair of birds hitherto unfamiliar to me, but which I subsequently identified as Black-necked Grebes (*Podiceps n.*

nigricollis). The black neck and upper parts and the tufts of golden feathers on each side of the head were unmistakable.

Unfortunately I was suddenly taken into hospital a few days later and was unable to revisit the pond for about four weeks. By this time it had become so much overgrown that observation was extremely difficult and I was unable to locate the birds in question. So that whether they nested, I am unable to state, but the place was suitable for their purpose and their behaviour when I saw them pointed to this possibility.

H. J. HOFFMAN.

THE COOT AS A MIGRANT.

IN their interesting article on the Coot (*Fulica a. atra*) Messrs. G. C. S. Ingram and H. Morrey Salmon refer (*antea* p. 39) to the six records of Coots striking at Irish light-stations on information given by me from the specimens obtained by the late R. M. Barrington. When supplying the authors with this information I now find that I omitted to mention the following interesting instance recorded by the Hon. Chas. Mulholland (Irish Nat. Journal, Vol. III, p. 55) of a Coot ringed as a fledgling at Downpatrick, co. Down, on June 7th, 1928, whose skeleton with ring attached was picked up near Glasgow on Dec. 23rd, 1928. Admitting the late date of recovery, but allowing for the fact that only the skeleton remained, this instance seems to me to be in keeping with the tendency shown by young birds of certain species—known as regular migrants—to move northwards in the late summer or early autumn before migrating south.

G. R. HUMPHREYS.

NESTING HABITS OF RED-LEGGED PARTRIDGE.

IN 1924 (Vol. XVII, p. 315) Col. M. Portal stated that the hen of a pair of Chukor (*Alectoris graeca cypristes*), in an enclosure, laid one clutch of eggs in one corner of the field, but did not sit on them on completion, but laid another clutch in a different part of the enclosure, and that when this clutch was complete, the hen sat on one clutch and the cock bird on the other clutch, and both clutches were hatched. He also brought forward a certain amount of evidence tending to prove the same habit in the case of the Red-legged Partridge (*Alectoris r. rufa*). I have tried for some years to obtain similar evidence, but until to-day, all that I have been able to ascertain from Keepers and from one or two personal observations is that a full set of eggs is often found cold and apparently deserted, but on inspection, ten or twelve days

later, a French Partridge has been found sitting, the eggs being apparently deserted in the meanwhile.

To-day, June 18th, I went to see Major Tabor's keeper, of Bovingdon, Essex, who informed me that early in May he found a French Partridge's nest with three eggs and a Pheasant's egg. He took the latter. About ten days later the nest contained thirteen eggs, but no sitting bird. About ten days ago he was passing close to the original nest when he put a French Partridge off a nest full of eggs, close to the original nest; the two nests were only three yards apart. On looking at the original nest there was a French Partridge sitting, which also ran off, and both birds ran down the field together, as a pair would do. He is almost certain that one bird was the male by its slightly larger size. He says French Partridges are very scarce on this part of his beat.

The above appears to bear out Col. Portal's observations in the case of "Chukor", though, of course, it is not definite proof.

I did not view the nests, as on my arrival rabbit-catchers had caused the birds to desert, and the eggs had been sucked by one of the Corvidæ. It would appear that further observation of the breeding habits of the French Partridge are desirable, and any corroborating notes as to the above would be very interesting.

Since writing the above I have read Mr. E. C. Stuart Baker's *Nidification of Birds of India* (vol. iv. p. 255), wherein he states "that many keepers firmly believe that two clutches of eggs are laid by *A. rufa* and that although they never find bigger clutches than about a dozen, they often see coveys of a great many more: the young in these coveys being all of the same age, whereas there would be 10-20 days' difference in the coveys if the idea was correct. A Norfolk keeper twice found cock and hen sitting on two clutches, yet the young supposed to belong to them must all have been hatched within 48 hours of each other".

I am inclined to agree with the Norfolk keeper, as it is a fact that the hen lays two clutches, the cock surely would never start sitting until pairing was finished and both clutches complete, in which case they would hatch on approximately the same day.

R. SPARROW.

SCARCE BIRDS IN FORTH.—In a list of unusual birds in this area for 1934, by the Midlothian Ornithological Club (*Scot. Nat.*, 1935), we note a small flock of Shore-Larks (*Eremophila a. flava*) on March 30th and 31st, at Aberlady (p. 51), a

Spotted Redshank (*Tringa erythropus*) at Threipmuir on September 29th and October 1st—the first record for Midlothian (p. 52), an Iceland Gull (*Larus leucopterus*) at Granton from April 3rd to 9th (p. 53), several Great Skuas (*Stercorarius skua*) at Granton between September 1st and October 20th, and a Pomatorhine (*S. pomarinus*) off Granton on September 21st.

GREENLAND REDPOLL AT ISLE OF MAY.—One of the first birds caught in the large ringing trap erected by the Midlothian Club with the assistance of Messrs. W. B. Alexander and R. M. Lockley on the Isle of May was a Redpoll, which they identified as an example of *Carduelis f. rostrata*. This was a female seen on October 3rd, caught on the 8th, and ringed and released. It was browner on the back and more heavily streaked on the flanks than Mealy Redpolls seen at the same time, and had a wing of 81 mm. (H. F. D. Elder, *Scot. Nat.*, 1935, p. 48).

WOOD-LARKS IN LANARKSHIRE.—A flock of about six Larks seen on December 13th, 1934, in the district of Bothwell, when viewed on the ground, were thought by Mr. W. Stewart (*Scot. Nat.*, 1935, p. 54) to be “slightly smaller and different from Sky-Larks”, and when the birds rose and circled round he at once observed their “inordinately short tails” and came to the conclusion that they were Wood-Larks (*Lullula arborea*).

GREAT GREY SHRIKE IN WILTSHIRE.—Mr. Richard N. Ticchurst writes that while journeying to Tidworth on July 30th, 1935, he saw a Great Grey Shrike (*Lanius excubitor*) perched on the telegraph wires beside the line just outside Ludgershall. The line is a single one and the wires close to the rails and just above railway carriage level, so that he had a good view of the bird as the train passed slowly by, and he noted its large size, comparatively long tail, characteristic bill, the white breast and wing-bar and the black mark through the eye.

BLACK-TAILED GODWIT IN MERIONETHSHIRE.—Mr. E. H. T. Bible informs us that he watched a Black-tailed Godwit (*Limosa limosa*) at rest, and also in flight, at Towyn, on August 11th, 1935, and that he saw one of these birds in the same place on October 2nd, 1934.

“INCUBATION” BY BOTH COCK AND HEN COMMON PART-RIDGE.—In the note on this subject (*antea*, p. 62), as several readers have pointed out, the heading unfortunately indicated

that the cock was incubating whereas the cock only came on to the nest when the young were hatching. Mr. Bywater's beautiful photograph of the two birds on the nest was, we believe, the first to be published demonstrating this habit, which has been frequently observed by game preservers but is, perhaps, not so widely known among ornithologists.

BLACKBIRDS' NEST WITH EIGHT EGGS—*Correction*.—In the editorial note under this heading (*antea*, p. 81) the reference to Vol. XIII. was wrongly given as page 274 instead of p. 297.

LETTER.

CENSUS OF NIGHTINGALES.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to Mr. Philips Price's interesting contribution dealing with the Nightingale in Gloucestershire (*antea*, pp. 81-83). I do not for one moment pretend to be an authority on the Nightingale but I have given this species very close attention for many years. Unless the Gloucestershire birds are different from the Kentish birds I cannot understand how Mr. Price finds so many unmated cocks.

During the past year, in one area of a few square miles, I found nine pairs and amongst these and in the same area only one cock which I believe to be unmated. To my knowledge this same cock has been unmated for five years.

It seems strange that a cock which does not find a mate should return to the same area year after year. I presume that it is the same bird in this case. Why does it not seek new grounds? This subject is interesting and repays in interest the time one spends upon it.

Whilst on this subject may I say that I have personal knowledge of a cock Tree-Pipit (*Anthus trivialis*) returning to the same spot for three years and being unmated each season.

The final paragraph in Mr. Price's valuable contribution states that the writer has no knowledge of how long the young stay with their parents in the case of the Nightingale. May I say that this year gave me two instances of parents and young still being together during the first week of July. These young birds hatched on May 28th.

BRAYMEAD, KEARSNEY,
NEAR DOVER.

G. E. Took.

REVIEWS.

LOCAL REPORTS.

Transactions of the Norfolk and Norwich Naturalists' Society for 1933-4.

The usual Annual Report of the Wild Bird Protection Committee contains some interesting notes by Mr. R. M. Garnett from the Cley area, good news from Major A. Buxton of an increase of Bearded Tits at Horsey, after two successful breeding seasons, and notes about the Harriers, Short-eared Owls and other birds, among which we note that a bird identified as a Little Egret was seen (no date is given but it seems probable that this was one of the Indian Cattle Egrets turned down by

the Zoo, and being reported here and there all over the country), and a White-winged Black Tern, seen at close range by the keeper. No date for the last item is given, but it may be remarked that Mr. Rivière has referred to one at Cley in June, 1934 (*antea*, Vol. XXVIII., p. 363). A valuable paper is contributed by Dr. S. H. Long and Mr. B. B. Rivière on the important occurrences and variations in breeding status of birds from 1929 to 1933.

The London Naturalist, 1934.

Ornithology is here well represented among the activities of the London Natural History Society. Under "British Trust for Ornithology" we find an account of the Walthamstow and Wanstead heronries and details regarding the status of the Woodcock. Mr. E. Mann gives notes on seventy-two species of birds seen at the Edmonton Sewage Farm in 1933-4; Mr. R. W. Hale writes of the movements of Starlings in the Hendon district and traces a flight line from Hendon to Baker Street, while Mr. F. J. Johnston writes of a Starling roost in Wipers Wood near Bishops Stortford which was traced by flight lines from Chingford; there is an account of the ringing results and, finally, the usual report on the birds of the Society's area (within twenty miles of St. Paul's Cathedral). Although the Report this year contains nothing of very special note, it is a good solid record, while the special reports on the status of selected species (Hawfinch, Lesser Redpoll, Tree-Sparrow, Sedge-Warbler and Little Grebe) are most valuable.

Report on the Birds of Warwickshire and Worcestershire, 1934. Prepared under the direction of the Birmingham Bird Club.

This is the first Annual Report produced by the Birmingham Bird Club. Long experience and expert knowledge of at least one of the editors has ensured careful editing and sifting of the records and notes, and the Report is a very welcome addition to the growing number of such publications. Sections are devoted to dates of arrival and departure of migrants, classified notes, an account of Bartley Reservoir and very useful reports on the status of specially selected species—Dipper, Nightingale, Redstart, Wryneck and Corncrake.

In the classified notes observations on such local species as Cirl Bunting, Wood-Lark (heard many times in N. Worcestershire but no nest actually found) and Pied Flycatcher have a special interest as have occurrences of Water-Pipits at Lower Bittell Reservoirs in March and October. A Blackcap is reported as being at Allesley throughout the winter of 1930-1, a Green Woodpecker was observed by a gardener tapping on the board of a beehive and catching the bees as they came out. There are a number of interesting notes on ducks and waders at the Bittell Reservoirs, while Mr. W. E. Kenrick's account of the birds at Bartley Reservoir has special interest as this reservoir is a new one. The increase in the number of Mallard, Wigeon and Tufted Ducks visiting it during the four years since it has been full is remarkable. Besides these, seven other species of duck, including Common Scoter and Sheld-Duck, have visited it, as well as a Brent Goose on March 23rd, 1934.

Cambridge Bird Club Report, 1934.

To this Report Mr. D. B. Keith contributes lengthy observations on Starling roosts in the southern part of the county. The main report on birds for the year contains several items of exceptional interest. Water-Pipits were noted at the Cambridge Sewage Farm between December, 1933, and March, 1934, as well as on April 1st and 18th and November 27th. A Grey Wagtail nested at Hildersham but the hen bird was

killed on the nest by a cat. This is stated to be the first authentic breeding record for the county. Another first breeding record refers to the Common Pochard, a female and six small young having been seen at Burwell Fen on June 10th and a brood reported on a lake at Wimpole Hall. It has already been recorded in our pages (*antea*, Vol. XXVII., pp. 357-8) that a Yellowshank appeared at the Sewage Farm on March 29th, 1934. It is now recorded that it was seen on many occasions in April, and on May 4th presumably the same bird was seen some seven miles away at Burwell Fen on June 10th and 17th, but it was seen again at the Sewage Farm from July 23rd to August 1st, on November 23rd and 27th, on January 13th and February 12th, 1935 --a remarkable record.

Report on Somerset Birds, 1934.

This full and detailed Report has been carefully compiled by a small editorial committee from the records sent in by the members of the Somersetshire Archaeological and Natural History Society. Perhaps the most important items recorded are the fact that Ravens can now be considered to have become once again regularly tree breeders in Somersetshire as they have in several other parts of the country, and the breeding of Cormorants on Steep Holm. Breeding on this island has been suspected but never proved in the past. In 1934 ten nests were found and photographs of two of these containing young appear in the report. In 1929 no nest was found but the present owner states that they have now bred for some years. Amongst other interesting records the following may be mentioned:—An unusual number of Hawfinches nesting, Crossbills feeding young (in 1933), two Blackcaps at Winscombe in January, two newly-established small heronries, one near Dunball and the other near Langport, twenty-three Black-tailed Godwit at Blagdon Reservoir on September 30th, twenty on October 18th and twelve on November 4th.

Ornithological Record for Derbyshire, 1933-34. By the Rev. F. C. R. Jourdain. Reprinted from the *Journal of the Derbyshire Arch. and Nat. Hist. Society*, 1934.

In the list of arrival of migrants in 1934 we find a single early Swift on April 19th at Ashbourne. In the systematic notes there is an interesting and authentic case of a pair of House-Martins (*Delichon u. urbica*) building in a House-Sparrow (*Passer d. domesticus*) which had taken possession of the nest. After vainly endeavouring to eject the Sparrows the Martins built up the entrance and then built another nest on the top of the old nest. After the young from this nest had flown, Mr. Harrison, the recorder, opened up the sealed nest and found the remains of a Sparrow inside it.

South-Eastern Bird Report. Being an account of Bird-life in Hampshire, Kent, Surrey and Sussex during 1934. Edited by Ralph Whitlock. Price 3s. 3d. (Obtainable from the author, White Hill Farm, Pitton, Salisbury).

This Report is a newcomer. It was a good idea of Mr. Whitlock's to combine these counties in a single Report, and he has evidently spent a great deal of time and energy in enlisting the help of a number of observers and in collecting and publishing their observations. We think, however, that the selecting and editing of so much material sent in by observers of such varied attainments from so large a region, cannot well be done by one man and we hope that Mr. Whitlock will consider the suggestion of securing, for future reports, the co-operation

of some of the expert ornithologists in the area covered by the Report, to give him assistance and strengthen his hand on critical points. There is much in the present Report which is valuable but there is also a good deal which is not worth printing, some which, if included, should have been enclosed in square brackets, and some which should have been omitted altogether. Some other records are so wanting in detail, where detail is essential, that it is impossible to accept them in their present form. Such are three Northern Bullfinches (*Pyrrhula p. pyrrhula*) seen at Brede on February 3rd, *autumn* records of Blue-headed Wagtails (*Motacilla f. flava*), a White's Thrush (*Turdus d. aureus*) in Hastings on September 25th, Cormorants nesting on ponds near Petworth (it is possible that "nests" is here a misprint for "rests"). These are all mere assertions without any corroborative detail. Some observers appear to think that a dogmatic assertion that their identification of a rare bird was correct is quite sufficient, forgetting that it is much more important to establish a useful record by bringing forward evidence to convince their readers than just to convince themselves.

It would have been better to have omitted such remarks as that "never more than four eggs are found in a clutch" of Carrion-Crow in the New Forest, that Hawfinches are not found there and Grey Wagtails and Lesser Spotted Woodpeckers are never seen, that the Red-backed Shrike is almost unknown and that Nuthatches are few (all these are incorrect statements), that the Common Sandpiper probably nests by the Rother and Stour, that Dunlins and Turnstones possibly nest in Sussex, and that a *female* Common Buzzard was seen at Leckford, while the evidence for the increase of the Common Buzzard in the New Forest as given is very weak, and the statement that there is reason to believe that Ruffs have bred in east Kent in recent years is meaningless without giving the reason.

We are glad to note that the Honey-Buzzard is recorded as successfully rearing a brood in the New Forest in 1934, but should welcome corroborative details.

There are two somewhat important records which must be discussed. The first is of a party of five birds observed on the sandy cliffs near Bexhill on February 11th, and identified as Water-Pipits. The description of the action of the birds and the observation that they had several of the characteristics of Pied Wagtails, especially their flight and note, lead one to consider the identification at fault.

The other record is of a bird seen near the estuary of the Stour on September 19th, and identified as a Yellowshank. From the description given we do not feel convinced that the bird was correctly identified, and it would be valuable to have the opinion of those who saw so much of the Cambridge Yellowshank. The bird is described as having longer legs than in the Redshank and of a bright yellow, the head dark with a distinct white streak on the lores, the lower back and rump almost black and the breast white. No description of the wing pattern is given. The note is described as "a rather harsh call three times".

There are a number of other records in this Report which are open to criticism, but we have given enough instances to sustain our view that it is most important that such Reports should be very critically edited and for this several ornithologists with local knowledge in each county are better than one who cannot possibly have a close acquaintance with so large an area. Once a record gets into print it is copied and to judge of its value in after years, if the evidence given in the first place is incomplete, is often impossible.



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CONTENTS OF NUMBER 5, VOL. XXIX., OCTOBER 1, 1935.

	PAGE
On the Nidification of the Lesser Redpoll. By R. E. Windsor	126
Notes on Birds in Ireland from 1930-1934. By G. R. Humphreys	127
Movements of Ringed Birds from Abroad to the British Isles and from the British Isles Abroad. Addenda IV. By H. F. Witherby and E. P. Leach	132
Notes :—	
Notice to Ringers (H.F.W.)	145
Variations in the Weights of Birds (G. R. Mountfort)	145
Immigration of Crossbills	148
Tree-Sparrow's Nest in a Thorn Hedge (J. S. Reeve)	149
Swallow Clutches and Broods (Rev. H. J. Emmet)	149
Breeding Places of Fulmar Petrels in Sutherlandshire (Dr. J. W. Campbell)	150
Status of Breeding Fulmar Petrels in Yorkshire (W. J. Clarke)	151
Black-winged Pratincole in co. Mayo (W. J. Williams)	151
Oyster-catcher laying Six Eggs (H. W. Robinson)	151
Grey Plover in Hertfordshire (C. Oldham)	152
A New Name for the British Redshank (G. M. Mathews)	152
Land-Rail laying Twice in Twenty-four Hours (C. J. Carroll)	152

Short Notes :—

Recovery of Marked Birds— <i>Correction</i> . Spotted Flycatcher attempting to build on occupied Wren's Nest. Song-Thrush laying Seven Eggs. Garganey in Derbyshire. Dusky Redshank in Isle of Man.— <i>Correction</i>	153
--	-----

Review :—

<i>The Abbotsbury Swannery</i> . By the Earl of Ilchester, O.B.E.	154
---	-----

Letters :—

The Birds of Lakeland. (E. Blezard)	155
Breeding-Habits of Red-legged Partridge. (E. A. Wallis, J. S. Reeve, F.C.R.J. and H.F.W.)	156



ON THE NIDIFICATION OF THE LESSER REDPOLL.

BY

R. E. WINDSOR.

ON May 15th, 1935, I had the good fortune to find, near the border of Greater London, in Surrey, a nest of the Lesser Redpoll (*Carduelis f. cabaret*). It was composed of fine grass, and had a foundation of birch twigs, but was not yet lined with down. The nest was easy to watch, being situated five feet up in a silver-birch sapling, growing by a much frequented path. The next day a Redpoll, presumably the female, was watched lining the nest with down, and on the 17th was seen to visit the nest and lay the first egg about 10.45 a.m. The bird was less than half-an-hour on the nest. Only six yards away was a seat, from which it was possible, with the aid of glasses, to see the nest and the red forehead of the sitting bird. On the following day (18th), the female was watched on the nest from 10.35 till 11.10 a.m., when the second egg was laid. The bird was thus on the nest for over half-an-hour. During these last two days both birds, before and after the egg-laying period, were seen in flight above the nesting site, between intervals of feeding.

The next day was wet, but on the 20th the female was apparently already sitting, for she was on the nest when I arrived, and was still sitting an hour-and-a-quarter later. In this period the male was seen to bring food to the hen on two occasions. The procedure was as follows:—Directly the sitting bird spied her mate coming with food, she left the nest and began calling many sharply-accentuated double-notes, meanwhile flying to meet the male, which had just perched among the higher sprays of the birch. While being fed, the wings of the female were shivered in the same style as the House-Sparrow, and the call changed to a quiet whimpering, reminding me of the sound emitted by the young Cuckoo in the same circumstances. On both occasions, after being fed, the female flew quickly back on to the eggs. The male was not seen to feed his mate while she was on the nest, neither was he seen to take his turn at sitting. During the next few days the female was sometimes seen to fly straight off the eggs, and into the adjoining birch-wood, remaining away for several minutes on each occasion. She appeared to be an active bird, and restless on the eggs, being continually off and on the nest. Though not once seen to remain for long sitting, she never left the eggs for very long.

On the 24th, when I visited it, the Redpoll's nest was intact, but the next day it was deserted, and all the eggs were gone.

NOTES ON BIRDS IN IRELAND FROM 1930 TO 1934.

MR. G. R. HUMPHREYS kindly communicates the following items of interest which have appeared in *The Irish Naturalists' Journal* from the beginning of 1930 to the end of 1934, and of which no notice has hitherto appeared in our pages. (See Vol. XXIV., p. 224, for previous notes).

CARRION-CROW (*Corvus c. corone*).—An adult male in good plumage was obtained in Ballywalter Park, co. Down, about 1908, together with a female Hooded Crow (*Corvus c. cornix*), it being stated that the birds were apparently mated. The specimen has only recently come to light and has now been presented to the Belfast Municipal Museum by Lord Dunleath. (J. A. S. Stendall, Vol. IV., p. 68).

The foregoing record is embodied in a paper on the status of the Carrion-Crow in Ireland where Mr. Stendall refers to the alleged breeding record of the species on Ireland's Eye, Dublin. This record was rejected in the *Pract. Handbook*, Vol. II., p. 887, on the advice of Mr. G. R. Humphreys who, though not in Ireland at the time, was satisfied that the record referred to the Raven (*Corvus c. corax*). In a letter (Vol. IV., p. 104), Mr. J. P. Brunker says: "He has now no doubt that the nest he saw was that of a Raven".

ROOK (*Corvus f. frugilegus*).—Mr. W. M. Abbott gives an interesting account of successful efforts which were made by Rooks with the assistance of reinforcements of their own species in preventing upwards of ten thousand Starlings (*Sturnus v. vulgaris*) from taking possession of the Rooks' normal roosting quarters near Fermoy, co. Cork, in the autumn of 1930. Mr. Abbott records that the normal population of Rooks here was three hundred to three hundred and fifty birds, but this number was increased to fifteen hundred or two thousand birds for the period from November 7th to 14th while the threatened invasion from the Starlings was in progress, after which the numbers became normal again. (Vol. III., p. 191).

GOLDEN ORIOLE (*Oriolus o. oriolus*).—Remains of a male evidently killed by a hawk, were found on the golf links at Valentia Harbour, Valentia Is., co. Kerry, May 8th, 1933. Identified from the beak and some feathers sent to the National Museum, Dublin. (A. W. Stelfox, Vol. V., p. 16).

PIED WAGTAIL (*Motacilla alba yarrellii*).—Mr. C. B. Moffat contributes some interesting notes of the Pied Wagtail roost in O'Connell Street, Dublin, for the winters of 1930/31 and 1933/34. He mentions that an assembly of close on six hundred birds in the winter of 1930/31 had increased in their fifth winter of occupation of the roosting site (1933/34) to about two thousand birds. (Vols. III., p. 206, and V., p. 10, cf., *Brit. Birds*, Vol. XXIV., pp. 26-8, Vol. XXVII., pp. 93-4).

WAXWING (*Bombycilla garrulus*).—One shot at Whiteabbey, co. Antrim, December 4th, 1931. (J. A. S. Stendall, Vol. IV., p. 39).

[AQUATIC WARBLER (*Acrocephalus paludicola*).—A bird identified as of this species, was seen on September 4th, 1931, on a part of the Bog of Allen not far from Johnstownbridge, co. Kildare. The bird is described as differing from the Sedge-Warbler by the very much darker marking to the centre of the feathers of the back and rump, the strong eye-stripe and the very marked buff stripe down the centre of the crown. The bill and legs are described as palish grey-green, which fits neither Sedge nor Aquatic Warbler. A note was uttered like " zu-it zu-it " and a soft but distinct musical warble of short duration. (Helen M. Rait Kerr, Vol. III., p. 255).]

GREAT SPOTTED WOODPECKER (*Dryobates major* ? subsp.).—Dr. E. F. Clowes states that on April 10th, 1931, a pair appeared in the Glenshesk Valley, co. Antrim. They frequented a rather circumscribed area in a belt of ash, spruce, fir and larch. They were watched from a hide frequently at a distance of ten and twenty yards, with glasses and naked eye, and were observed drumming on several occasions. Both birds disappeared after April 22nd. (Vol. III., p. 208).

[A "highly coloured" bird near Portnablagh Harbour, co. Donegal, January, 1930, stated to have been of this species, was seen drinking at a pool on flooded downs some thirty yards above high water mark by John Robinson of Dunfanaghy. (C. Blake Whelan, Vol. III., p. 256).]

DARK-BREASTED BARN-OWL (*Tyto a. guttata*).—Three specimens obtained from Thurles, co. Tipperary; Listowel and Tralee, co. Kerry, respectively, during March, 1932, were submitted to Mr. Witherby, who determined the sub-species. These are the first definite records of this continental race in Ireland (W. J. Williams, Vol. IV., p. 56).

HOBBY (*Falco s. subbuteo*).—A male was shot by a gamekeeper in the vicinity of Ballywalter, co. Down, in June, 1928.

A female was found hanging in a keeper's larder, having been shot several days previously. The first mentioned specimen is in the possession of the Hon. Chas. Mulholland (now Lord Dunleath) (J. A. S. Stendall, Vol. III., p. 178). Obtained ten or eleven times previously in Ireland.

COMMON BUZZARD (*Buteo b. buteo*).—One was seen on February 20th, 1931, by Col. Bartholomew and Mr. F. J. Lucas, flying over moorlands above Glenabo Wood, about 2½ miles from Fermoy, co. Cork. Col. Bartholomew knows the species well in Devonshire. (W. M. Abbott, Vol. III., p. 196).

GOLDEN EAGLE (*Aquila c. chrysaetus*).—One frequented the mountains between Armoy and Ballycastle in co. Antrim from 1926 to 1930. Identification was made certain by a flight feather picked up and sent to Mr. H. F. Witherby for examination. (C. J. Milligan, Vol. III., p. 254).

SPOONBILL (*Platalea l. leucorodia*).—One was seen by Col. C. M. Gibbon frequenting, from August 13th to end of September, 1931, the same piece of ground where one was shot on November 12th, 1844 in co. Wexford, as reported by Thompson (*Nat. Hist. of Ireland*, Vol. II., p. 180), (C. B. Moffat, Vol. IV., p. 57).

BITTERN (*Botaurus s. stellaris*).—A male was picked up on December 18th, 1931, at Gortgole, two and a half miles north of Portglenone, co. Antrim (J. A. S. Stendall, Vol. IV., p. 14). One was picked up dead in some boggy land about one and a half miles west of Magherafelt, co. Derry, October 19th, 1933 (J. A. S. Stendall, Vol. V., p. 16).

WHOOPEE SWAN (*Cygnus cygnus*).—A herd of fifteen, as well as some sixty Mute Swans (*Cygnus olor*) was present on January 28th, 1933, on a small lake partly frozen over at Cornafean, co. Cavan. Both parties left next day. On February 5th fifteen Whoopers were back and also seven Bewick's Swans (*Cygnus b. bewickii*). "I believe Whoopers are fairly frequent visitors to this quarter judging from their very peculiar cry which has long been familiar to me" (Chas. Faris, Vol. IV., p. 155).

One adult Whooper, possibly a female, was seen in company with Mute Swans on River Lagan, Belfast, between Ormeau and King's Bridges, on June 14th, 1933; last seen June 30th (J. A. S. Stendall, Vol. IV., pp. 199 and 212).

One Whooper was seen May 27th, 1934, Antrim Bay, Lough Neagh. Examined through glasses. Another seen near this spot on April 21st, 1931 (C. D. Deane, Vol. V., p. 120).

MUTE SWAN (*Cygnus olor*).—Mr. W. J. Williams reports that one of these birds seen on Lough Erne with the head and neck submerged, early in the day, was still in this position in the evening, and an investigation showed that a ten pound pike had taken the Swan's head; as neither could dislodge both were drowned. (Vol. III., p. 176).

BRENT GOOSE (*Branta bernicla*).—Thirteen were seen on April 24th, 1932, on a large marsh between Athy and Monasterevan, fifty miles from the sea; "possibly on the move" towards the north (Rev. K. M. Dunlop, Vol. IV., p. 79).

MALLARD (*Anas p. platyrhynchos*).—A duck was found sitting on five eggs on February 27th, 1931, at Colebrooke, co. Fermanagh, by Sir Basil Brooke, Bart. (J. A. S. Stendall, Vol. III., p. 197).

AMERICAN BLUE-WINGED TEAL (*Anas discors*).—A female was shot on a marsh adjoining river Shannon, near Tervoe, co. Limerick, on November 4th, 1932. "Third Irish specimen and sixth record for the British Isles. Presented to National Museum, Dublin, by me" (Stephen F. Ebrill, Vol. IV., p. 154).

PINTAIL (*Anas a. acuta*).—A nest taken on April 24th, 1917, in co. Roscommon, by Mr. J. ff. Darling, contained ten eggs of the green type, and had evidently been deserted. The nest was in a swamp under a tree, but not hidden by herbage. Dr. P. R. Lowe, who examined some of the down sent to the British Museum (Nat. Hist.) confirmed the identification as that of Pintail (W. H. Workman, Vol. IV., p. 79). Mr. G. R. Humphreys mentions that the nesting of this species in another locality in Ireland in 1928 was reported in Vol. II., p. 203, of the same Journal, and adds that it has been known to breed there before this, and subsequently.

VELVET-SCOTER (*Oidemia f. fusca*).—Some seen among Common Scoters (*Oidemia n. nigra*) in Ballycastle Bay, February 12th, 1929 (E. F. Clowes, Vol. III., p. 163).

GANNET (*Sula bassana*).—Dr. E. F. Clowes says that on a wild wet day, October 19th, 1932, a Gannet was fishing on the fresh water lake, Lough-na-Cranagh, at Fair Head, co. Antrim (Vol. IV., p. 148).

LEACH'S FORK-TAILED PETREL (*Oceanodroma l. leucorrhoa*).—On October 15th, 1933, during a gale from the north, one was found inland near Ballymena, co. Antrim (A. O'N. C. Chichester, Vol. V., p. 157).

TURTLE-DOVE (*Streptopelia t. turtur*).—One or two seen on Great Saltee Island, off co. Wexford, June, 1930 (R. S. Pollard, Vol. III., p. 151). (cf. *Brit. Birds.*, Vol. XXIV., p. 225).

AMERICAN PECTORAL SANDPIPER (*Calidris melanotos*).—A male shot at Ardara, co. Donegal, on October 21st, 1930, is now in the Belfast Municipal Museum (W. J. Williams, Vol. III., p. 154).

BLACK-TAILED GODWIT (*Limosa l. limosa*).—A wounded bird picked up on Ballycastle Golf Links, co. Antrim, on March 3rd, 1929, is now in Belfast Municipal Museum (E. F. Clowes, Vol. III., p. 163).

[GREAT SNIPE (*Capella media*).—One is reported as seen a few miles from Mallow, co. Cork, by Mr. R. E. Longfield's son and gamekeeper, when Snipe shooting on October 26th, 1931. (R. E. Longfield, Vol. IV., p. 14).]

SABINE'S GULL (*Xema sabini*).—Mr. J. A. S. Stendall states that he is satisfied that a bird in immature plumage, in company with Black-headed Gulls (*Larus ridibundus*), on the river Lagan, near Ormeau Bridge, at Belfast, on November 1st, 1932, was of this species. It was noted as having a rather deeply cleft tail with dark feather tips. There are previous records for the Lagan, two of the specimens being in the Belfast Municipal Museum. (J. A. S. Stendall, Vol. IV., p. 136).

Mr. Stendall further informs us that he is very familiar indeed with the specimens in the museum, and examined them again a couple of hours after he had seen the bird in question.

MOVEMENTS OF RINGED BIRDS FROM ABROAD TO THE BRITISH ISLES AND FROM THE BRITISH ISLES ABROAD.

ADDENDA IV.*

BY

H. F. WITHERBY AND E. P. LEACH.

To the list of Ringing Stations already published one new station has to be added.

<i>Abbrevia- tion used. Pe.</i>	<i>Inscription on ring.</i>	<i>Organization.</i>	<i>Director.</i>
	N. Museum, Praha, C.S.R.	National Museum, Prague. Czecho-Slovakia.	Dr. J. Baum.

ROOK (*Corvus f. frugilegus*). RINGED ABROAD AS NESTLINGS.

	<i>Ringed.</i>		<i>Recovered.</i>
R. D51467	Posen, Germany	20.5.32	Hereford 13.11.34
R. D54954	Hannover, Germany	17.5.32	Suffolk 5.12.34
R. D55274	Ditto	18.5.32	Kent 5.11.34

STARLING (*Sturnus v. vulgaris*).

Two cases not included in this list require special explanation. The first is of a Starling which was ringed by the Göteborg Museum (with ring numbered 5361B) in Scania, Sweden, as a young one on June 8th, 1931. This bird was caught in Monmouthshire on December 13th, 1931 (*antea*, Vol. XXV., p. 357) and released with the ring on it. We find (*Göteborgs Mus. Arstryck*, 1934, p. 18) that it has been reported again on June 20th, 1932, at the place where it was originally ringed. Unfortunately, the bird was dead and cannot provide any further record.

The second case is of a Starling which was ringed on Heli-goland (H.734972) on migration on October 26th, 1932, and caught in Cheshire by Mr. A. W. Boyd on January 28th, 1933. Mr. Boyd re-ringed the bird with our ring WF.69 and released it, and we now have it reported from Schleswig-Holstein on July 6th, 1935. This bird also is unfortunately dead.

These two cases are the first we have had of the kind where the bird has been proved by ringing to have made the double journey to and from the British Islands.

*For previous parts see Vol. XXV., pp. 110-128; 174-192; 245-268; 357-360. Vol. XXVI., pp. 352-361. Vol. XXVIII., pp. 106-112; 133-141.

STARLING—(*continued*).

(a) RINGED ABROAD AS YOUNG OR IN BREEDING-SEASON.

<i>Ringed.</i>			<i>Recovered.</i>	
<i>Ra.</i> 61845	Kurland, Latvia	28.5.34	Norfolk	5.11.34
<i>Ra.</i> 72251	Barkava, Latvia	5.6.34	Carmarthens.	3.1.35
<i>La.</i> F516	Rokiskis, Lithuania	28.6.31	Queen's Co.	—.2.33
<i>La.</i> F9129	Palonai, Lithuania	3.6.34	Berks.	9.1.35
<i>R.</i> F121280	Memel Territory	30.5.33	Kerry	—.3.34
<i>R.</i> F116370	Pomerania, Germany	30.5.33	Bedfords.	9.1.35
<i>R.</i> F144243	Mecklenburg, Germany	29.5.34	Dorset	—.2.35
<i>H.</i> 613689A	Westphalia, Germany	24.5.32	Herts.	—.9.34
<i>H.</i> 645240A	Hessen-Nassau, Germany	5.8.33	Essex	3.2.35
<i>G.</i> 11044B	Halland, Sweden	11.6.33	Tipperary	—.3.34
<i>G.</i> 11273B	Ditto	28.5.34	Cheshire	26.11.34
<i>G.</i> 8139B	Gotland, Sweden	29.5.33	Hampshire	1.11.33
<i>G.</i> 11324B	Ditto	2.6.33	Carmarthens.	16.2.34
<i>Sk.</i> 1406T	Sjælland, Denmark	31.5.31	Cumberland	—.3.34
<i>Sk.</i> 11813T	Ditto	31.5.33	North Sea (50 miles off Yorks. coast)	20.3.35
<i>Sk.</i> 11643T	Jylland, Denmark	28.5.33	Herefords.	—.5.34
<i>Sk.</i> 7189T	Ditto	27.5.32	Donegal	—.12.33
<i>C.</i> RK9981	Ditto	13.6.34	Carnarvons.	29.1.35
<i>H.</i> 756612	Schleswig-Holstein	21.5.34	Kent	—.1.35
<i>R.</i> F122497	Lower Elbe, Germany	29.5.33	Worcester.	6.1.34
<i>L.</i> 108435	W. Frisian Is., Holland	29.5.32	Stafford.	—.1.33
<i>L.</i> 109326	Ditto	2.6.33	Warwicks.	28.10.33
<i>L.</i> 123302	Ditto	12.6.33	Bucks.	10.12.33
<i>L.</i> 34024	Overijssel, Holland	28.5.33	Essex	26.11.33
<i>L.</i> 99760	Ditto	14.6.32	Antrim	28.12.33
<i>L.</i> 101493	Guelderland, Holland	23.5.32	Cornwall	19.12.33

(b) RINGED ABROAD. UNCERTAIN WHERE BREEDING.

The first bird in this list (*La.* F7724) ringed in Memel in July and found dead on a roof in Garforth, Yorkshire, at the end of March, two years later, was reported to be nesting, but unfortunately no conclusive proof was obtainable. The same applies to the Brussels Starling CC402, ringed in Belgium in September, and found in Suffolk in the following May (see Vol. XXVIII., p. 109).

<i>Ringed.</i>			<i>Recovered.</i>	
<i>La.</i> F7724	Memel Territory	5.7.33	Yorks.	—.3.35
<i>R.</i> F125232	Ditto	24.6.33	Flint.	13.3.35
<i>R.</i> F125340	Ditto	25.6.33	Cheshire	27.12.34
<i>R.</i> F160868	Ditto	25.6.34	Ditto	3.12.34
<i>R.</i> F129032	Ditto	29.6.33	Wilts.	—.11.34
<i>H.</i> 751324	Silesia, Germany	25.3.34	Hampshire	—.12.34
<i>H.</i> 751873	Heligoland	26.3.34	Tipperary	10.2.35
<i>H.</i> 750080	Mellum, N. Sea	23.9.33	Clare	—.3.34
<i>L.</i> 102866	Zuid Holland	26.10.31	Stafford.	—.1.33
<i>L.</i> 111358	Ditto	20.9.33	Wilts.	—.1.34
<i>L.</i> 111533	Ditto	28.9.33	Glamorgan.	—.11.33

STARLING—(continued).

RINGED ABROAD, BREEDING-PLACE UNCERTAIN.

<i>Ringed.</i>			<i>Recovered.</i>	
L. 112788	Zuid Holland	29.10.33	Dorset.	10.12.33
L. 113165	Ditto	6.11.33	Kent	7.12.33
L. 124518	Ditto	6.11.33	Suffolk	—.12.33
L. 93517	Ditto	25.3.31	Warwicks.	5.1.34
L. 106823	Ditto	7.2.33	Lincoln	30.12.33
B. CC3645	West Flanders	9.10.33	Gloucester	1.7.34
or CC3654				
B. CC444	Ditto	20.9.31	Somerset.	—.12.33
B. CC4900	Ditto	28.10.33	Sussex	1.11.33

RINGED ABROAD. REMOVED TO A DISTANCE AND RELEASED
EXPERIMENTALLY.

<i>Ringed.</i>		<i>Recovered.</i>	
R. F159210	Memel Territory transported to and released Silesia (340 m. S.S.W.) within 20 hours.	20.6.34	Yorks. 22.1.35

(c) RINGED GREAT BRITAIN AS WINTER VISITORS OR MIGRANTS
AND RECOVERED ABROAD IN BREEDING-PLACE.

The Starling reported from Russia is of special interest as we have only one previous record of a Starling coming from that country.

<i>Ringed.</i>		<i>Recovered.</i>	
Sussex	2.3.29	Leningrad Region, Russia	20.6.30
Middlesex	22.12.33	Telsiai, Lithuania	25.5.34
Worcester.	19.12.33	East Prussia	29.5.34
Middlesex	16.12.33	Ditto	25.7.34
Devon.	29.12.33	Ditto	—.6.34
Ditto	2.1.31	Pomerania, Germany	22.7.34
Worcester.	23.2.34	Mecklenburg, Germany	25.4.34
Devon.	7.12.33	Bremen, Germany	—.6.34
Cheshire	24.1.33	Jylland, Denmark	1.4.35
Ditto	7.11.34	Ditto	8.7.35
Ditto	24.2.33	Sjælland, Denmark	12.7.34
Worcester.	21.3.34	Schleswig-Holstein	—.7.35
Essex	15.12.33	Zuid Holland	10.8.35

(d) RINGED GREAT BRITAIN AND RECOVERED
ABROAD. BREEDING-PLACE UNCERTAIN.

<i>Ringed.</i>		<i>Recovered.</i>	
Oxford	26.11.33	East Prussia	3.11.34
Yorkshire	4.2.34	Sjælland, Denmark	9.9.34
Cheshire	13.12.33	Ditto	15.9.34
Devon.	24.1.33	Ditto	29.9.34
Norfolk	7.3.34	Laaland, Denmark	24.9.34
Worcester	9.2.35	Friesland, Holland	15.3.35
Middlesex	28.10.33	Utrecht, Holland	—.2.35
Worcester.	15.2.34	West Flanders, Belgium	27.10.34

LESSER REDPOLL (*Carduelis f. cabaret*).

This is our first ringing record of a Lesser Redpoll migrating overseas. As it was stated to have been found dead near the nest in Durham it may be supposed that it migrated from there to Holland, though whether it was in its winter quarters when ringed or on passage is uncertain (*cf.*, *Ardea*, XXIII., p. 202, *Gerfaut*, 1933, p. 218).

RINGED ABROAD. RECOVERED BREEDING IN BRITISH ISLES.

	<i>Ringed.</i>		<i>Recovered.</i>	
L. A11983	Zuid Holland	29.10.32	Durham	8.7.33

CHAFFINCH (*Fringilla c. cœlebs*).

RINGED ABROAD. BREEDING-PLACE UNCERTAIN.

	<i>Ringed.</i>		<i>Recovered.</i>	
L. A11148	Zuid Holland	6.10.32	Limerick	25.2.33
L. B6209	Ditto	18.10.34	Louth	5.2.35
B. 7B5014	Brabant, Belgium	21.10.34	Worcester.	19.3.35
B. 7B4707	Liège, Belgium	19.10.34	Berks.	20.1.35

BRAMBLING (*Fringilla montifringilla*).

RINGED GREAT BRITAIN, RECOVERED ABROAD.

BREEDING-PLACE UNCERTAIN.

	<i>Ringed.</i>		<i>Recovered.</i>	
Westmorland	26.12.33	Antwerp, Belgium		22.10.34
	<i>Ringed.</i>		<i>Recovered.</i>	
B. 6B4036	Antwerp, Belgium	19.10.33	Warwicks.	7.3.35

MEADOW-PIPIT (*Anthus pratensis*).

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>	
Northumberland	20.5.34	Landes, France		15.10.34

RINGED GREAT BRITAIN AS ADULT.

	<i>Ringed.</i>		<i>Recovered.</i>	
Worcester	9.10.34	Landes, France		3.11.34

YELLOW WAGTAIL (*Motacilla f. rayi*).

This is the first ringed Wagtail we have had reported from North Africa.

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>	
Westmorland	—.7.32	Casablanca, Morocco		15.11.34

SONG-THRUSH (*Turdus c. cricetorum*).

RINGED GREAT BRITAIN AS NESTLINGS.

	<i>Ringed.</i>		<i>Recovered.</i>	
Kent	24.4.34	Charente Inf., France		14.10.34
Norfolk	20.4.31	Gironde, France		18.11.34

RINGED ABROAD IN BREEDING-SEASON.

	<i>Ringed.</i>		<i>Recovered.</i>	
L. 79668	Drenthe, Holland	2.7.32	Suffolk	17.2.33
B. C7873	West Flanders, Belgium	30.6.31	Sussex	29.1.33

BLACKBIRD (*Turdus m. merula*).

RINGED ABROAD AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>	
Sk. 7382T	Jylland, Denmark	8.5.33	Suffolk	10.1.35

RINGED ABROAD AS MIGRANTS.

	<i>Ringed.</i>		<i>Recovered.</i>	
H. 729229	Heligoland	16.10.32	I. of Bute	—.3.34
H. 736575	Ditto	10.3.33	Kerry	—.12.33
H. 759851	Ditto	21.12.34	Herts.	20.1.35

RINGED GREAT BRITAIN AS WINTER VISITORS
OR MIGRANTS.

	<i>Ringed.</i>		<i>Recovered.</i>	
Perthshire	22.1.33	Westphalia, Germany		10.6.34
Yorkshire	24.1.34	Jylland, Denmark		24.6.34
Oxford	8.12.34	Fyen, Denmark		—.4.35

WHEATEAR (*Ænanthe æ. ænanthe*).

Our only previous records of ringed Wheatears reported abroad have been two from France and one from Portugal.

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>	
Shetland	25.6.34	West Morocco		29.10.34

SHORT-EARED OWL (*Asio f. flammeus*).

This is the first ringed Short-eared Owl we have had reported from abroad. This being so it is impossible to say if the very south-easterly trend of migration shown by this bird is usual with our representatives of the species or not. The only comparable records are of the Cuckoos and Wood-Warblers reported from Italy (see maps, Vol. XXV., p. 122, and Vol. XXVIII., p. 112).

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>	
Norfolk	16.5.33	Gozo, Malta		24.10.34

MERLIN (*Falco columbarius* ? subsp.).

It should be noted that the Iceland Merlin was separated by Kleinschmidt (*Falco*, 1917, p. 9) as a darker form than the typical.

Two Merlins ringed in Iceland have now been reported in the British Islands and it is to be hoped that sufficient material will be forthcoming to enable an opinion to be arrived at as to the acceptance or otherwise of this bird as a distinct form to be added to the British list.

The earliest available name is, according to Hartert, (*Vög. þal. Fauna*, p. 2200) *F. subaeson* Brehm, *Ornis*, III., p. 9, 1827.

MERLIN—*continued*.

RINGED ABROAD AS NESTLING.

	<i>Ringed.</i>	<i>Recovered.</i>
Rk. 4. 284	N. W. Iceland	15.7.34 Stirling 3.10.34

SPARROW-HAWK (*Accipiter n. nisus*).

RINGED ABROAD AS MIGRANT.

	<i>Ringed.</i>	<i>Recovered.</i>
H. 671647	Heligoland	8.4.30 Essex 6.1.34

COMMON HERON (*Ardea c. cinerea*).

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>	<i>Recovered.</i>
Sussex	27.5.34	Seine Inf., France 15.2.35

RINGED ABROAD AS NESTLINGS.

	<i>Ringed.</i>	<i>Recovered.</i>
G. 2228E	Västergötland, Sweden	10.6.34 Yorks. 22.1.35
V. 0893	Pas-de-Calais, France	10.5.32 Oxford 3.12.32

GREY LAG-GOOSE (*Anser anser*).

We have had two previous records of Grey Lag-Geese ringed in Iceland, one from Inverness and the other from Wexford.

RINGED ABROAD AS YOUNG.

	<i>Ringed.</i>	<i>Recovered.</i>
Rk. 2.31	North Iceland	24.7.32 Perth. 31.1.35
Rk. 2.83	Ditto	25.7.33 Dumfries. 11.1.35
Sk. B2279	Ditto	21.7.34 Tyrone 30.11.34

MALLARD (*Anas p. platyrhyncha*).

RINGED GREAT BRITAIN AS ADULTS.

	<i>Ringed.</i>	<i>Recovered.</i>
Wigtownshire	17.3.31	West Finland Autumn, 1931
Ditto	8.3.33	Ditto 15.8.33
Ditto	9.3.34	Opland, Norway 29.4.35
Ditto	6.3.33	Jylland, Denmark 25.10.34
Ditto	8.3.34	Sjælland, Denmark 1.10.34

GADWALL (*Anas strepera*).

Of seven Iceland ringed Gadwall all except one (Sussex) have been reported in Ireland.

RINGED ABROAD IN BREEDING-SEASON.

	<i>Ringed.</i>	<i>Recovered.</i>
Sk. K13080	Myvatn, Iceland (breeding adult)	17.6.34 Kerry 10.12.34
Sk. V.4781	Husavik, Iceland	4.8.29 Fermanagh 12.1.35

TEAL (*Anas c. crecca*).

RINGED GREAT BRITAIN AS ADULT IN WINTER.

	<i>Ringed.</i>	<i>Recovered.</i>
Cumberland	1.3.33	Opland, Norway 13.6.35
Wigtownshire	28.2.28	Karlskrona, Sweden 1.8.29

TEAL—(*continued*).

RINGED ABROAD AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>
<i>Sk.</i>	V4425	Saudarkrok, Iceland	3.8.30	Limerick 15.11.33
<i>Rk.</i>	5.655	Ditto	30.7.34	Perths. 28.11.34

RINGED ABROAD FROM DECOYS.

		<i>Ringed.</i>		<i>Recovered.</i>
<i>Sk.</i>	M1844	Fanö, Denmark	4.10.31	Lincoln. 26.2.32
<i>Sk.</i>	M1537	Ditto	26.10.31	Kildare 22.1.35
<i>Sk.</i>	M1563	Ditto	26.10.31	Meath —.3.34

PINTAIL (*Anas a. acuta*).

RINGED ABROAD AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>
<i>Rk.</i>	3.131	Adaldalur, Iceland	17.7.34	Cheshire 12.1.35

SHOVELER (*Spatula clypeata*).

RINGED ABROAD AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>
<i>Sk.</i>	V8035	Jylland, Denmark	6.6.32	Antrim 17.10.32

TUFTED DUCK (*Nyroca fuligula*).

RINGED ABROAD AS BREEDING ADULT.

<i>Rk.</i>	4.45	Myvatn, Iceland	19.6.33	Mayo 4.12.34
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RINGED GREAT BRITAIN AS ADULT IN WINTER.

The bird reported from Finland on April 18th may safely be presumed to have been at or on the way to its breeding ground and to have been a winter visitor to this country. (Unless indeed this was a case of abmigration). The fact that the bird was caught at the same place in two following winters is most interesting and is the first case under our scheme of proof by ringing of a migrant wintering in the same place, though in America there have been a number of such cases. It is also of interest to note that the bird was caught on both occasions by Mr. P. A. D. Hollom, trapped inside the same outlet at Molesey reservoir.

	<i>Ringed.</i>		<i>Recovered.</i>
Surrey	20.1.34	South Finland	18.4.35
	recaught 24.12.34		
Surrey	4.2.34	Pas-de-Calais, France	16.7.34

SCAUP-DUCK (*Nyroca m. marila*).

RINGED ABROAD IN BREEDING SEASON.

		<i>Ringed.</i>		<i>Recovered.</i>
<i>Rk.</i>	3.44	Myvatn, Iceland (breeding adult)	14.6.33	Donegal 8.3.34
<i>Rk.</i>	3.48	Ditto	19.6.33	Lancs. 19.2.35
<i>Rk.</i>	4.185	Adaldalur, Iceland	30.7.34	Waterford —.2.35

CORMORANT (*Phalacrocorax c. carbo*).
RINGED GREAT BRITAIN AS NESTLINGS.

Ringed.		Recovered.	
Pembrokeshire	1.7.34	Côtes-du-Nord, France	5.2.35
Wigtownshire	3.8.34	Finistère, France	7.10.34
Ditto	3.8.34	Ditto	19.12.34
Ditto	3.8.34	Ditto	18.9.34
Ditto	3.8.34	Ditto	27.9.34
Pembrokeshire	1.7.34	Ditto	24.12.34
Ditto	1.7.34	Ditto	25.9.34
Ditto	1.7.34	Ditto	15.9.34
Ditto	1.7.34	Morbihan, France	16.11.34
Ditto	1.7.34	Ditto	9.10.34
Ditto	1.7.34	Charente Inf., France	9.11.34

GANNET (*Sula bassana*).

This interesting list of Gannets is mainly due to the very large number ringed by Mr. Wontner-Smith in conjunction with Mr. R. M. Lockley at Grassholm in 1934. The West African records are of special interest. It will be noticed that the earliest date of these is December 20th and this may indicate that the birds travel gradually south. It must, however, be noted that as previously recorded (Vol. XXVIII., p. 136) a young bird reached S.W. Morocco on November 12th. It must also be noted that not all are far south at the beginning of the year since we have a record of one (second year bird) in Finistère at the end of December and of adults in Belgium, and even in Norway, in January.



GANNET
(*Sula bassana*)
Map to show recovery positions of birds ringed as nestlings in Great Britain

GANNET—(*continued*).

RINGED GREAT BRITAIN AS NESTLINGS.

<i>Ringed.</i>		<i>Recovered.</i>	
Grassholm	17.7.34	Ushant, France	11.6.35
[Pembroke.]			
Ditto	17.7.34	Ditto	22.7.35
Ditto	17.7.34	Finistère, France	3.9.34
Ditto	17.7.34	Vendée, France	5.9.34
Ditto	17.7.34	Landes, France	26.7.35
Ditto	17.7.34	Basses Pyrénées, France	6.10.34
Ditto	17.7.34	Ditto	28.9.34
Ailsa Craig	25.8.34	Guipuzcoa, Spain	26.11.34
Grassholm	17.7.34	Ditto	28.9.34
Ditto	17.7.34	Santander, Spain	9.9.34
Ditto	17.7.34	Ditto	6.9.34
Ditto	17.7.34	Ditto	8.10.34
Ditto	17.7.34	Asturias, Spain	—.9.34
Ditto	17.7.34	Ditto	4.10.34
Ditto	17.7.34	Coruña, Spain	6.9.34
Ditto	17.7.34	Gibraltar	—.10.34
Ailsa Craig	25.8.34	N.W. Morocco	11.2.35
Grassholm	17.7.34	Ditto	11.2.35
Ditto	17.7.34	S.W. Morocco	—.1.35
Ditto	17.7.34	Rio de Oro, W. Africa	—.2.35
Ditto	17.7.34	Ditto	—.2.35
Bass Rock	9.9.34	Ditto	—.3.35
Grassholm	17.7.34	Mauritania, W. Africa	20.12.34
Ditto	17.7.34	Ditto	12.1.35
Ditto	17.7.34	Ditto	12.1.35

MANX SHEARWATER (*Puffinus p. puffinus*).

Mr. Lockley has already dealt with these records and has given a very possible explanation, supported by evidence derived from systematic ringing, of the late stay of these birds so far to the south (*antea*, pp. 105-107).

RINGED GREAT BRITAIN AS ADULTS.

<i>Ringed.</i>		<i>Recovered.</i>	
Pembrokeshire	21.7.34	Ushant, France	23.4.35
Ditto	14.7.34	Basses Pyrénées, France	10.4.35
Ditto	16.7.34	Ditto	9.5.35
Ditto	18.7.34	Ditto	10.4.35
Ditto	17.6.34	Vizcaya, Spain	—.4.35
Ditto	16.7.34	Ditto	15.4.35
Ditto	19.7.34	Ditto	8.4.35
Ditto	13.8.34	Ditto	31.3.35

TURTLE-DOVE (*Streptopelia t. turtur*).

RINGED GREAT BRITAIN AS YOUNG.

<i>Ringed.</i>		<i>Recovered.</i>	
Cheshire	26.7.32	Gironde, France	28.5.34

STONE-CURLEW (*Burhinus æ. ædicnemus*).

RINGED GREAT BRITAIN AS NESTLING.

Ringed.

Recovered.

Oxford 31.5.34 Seine Inf., France 16.11.34

OYSTER-CATCHER (*Hæmatopus ostralegus* sub-species?).

RINGED ABROAD AS YOUNG.

Ringed.

Recovered.

Rk. 4.447 East Iceland 19.7.34 Pembroke. 21.4.35

RINGED PLOVER (*Charadrius h. hiaticula*).

This is the first British ringed Ringed Plover which has been reported from abroad.

RINGED GREAT BRITAIN AS NESTLINGS.

Ringed.

Recovered.

Norfolk 19.7.33 Vendée, France 11.3.35

LAPWING (*Vanellus vanellus*).

RINGED ABROAD AS YOUNG.

Ringed.

Recovered.

L. 34434 Overysse, Holland 18.6.32 Gloucester. 29.12.34

REDSHANK (*Tringa t. totanus*).

RINGED GREAT BRITAIN AS NESTLING.

Ringed.

Recovered.

Lancashire 14.6.34 Morbihan, France 9.9.34

ICELAND REDSHANK (*Tringa t. robusta*).

RINGED ABROAD AS YOUNG.

Ringed.

Recovered.

Rk. 5433 Akureyri, Iceland 24.7.33 Caithness. 15.10.34
Sk. S9963 Myvatn, Iceland 21.7.34 Norfolk 1.9.34CURLEW (*Numenius a. arquata*).

RINGED ABROAD AS YOUNG.

Ringed.

Recovered.

Is. C10210 Helsingfors, Finland 18.6.30 Norfolk 1.9.30

FÆROE SNIPE (*Capella g. færoeensis*).

All the ringed Snipe of this form so far reported as found in the British Islands have occurred in Ireland.

RINGED ABROAD AS YOUNG.

Ringed.

Recovered.

Rk. 6.287 Adaldalur, Iceland 30.6.34 Tipperary 21.11.34

WOODCOCK (*Scolopax r. rusticola*).

We have had a previous record of a Woodcock ringed in Ireland which was found in Norway as late as April 21st Vol. XXV., p. 246), but the Perthshire ringed bird found in that country on May 13th is remarkable. We have no definite evidence that it was breeding there, if, indeed, the Woodcock does breed in its first year.

WOODCOCK—(continued).

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>		<i>Recovered.</i>
Perthshire.	6.5.31	Nomedal, Norway	13.5.32
Fife.	10.6.34	Santander, Spain	2.12.34
Perthshire.	11.5.34	Asturias, Spain	10.12.34

SANDWICH TERN (*Sterna s. sandvicensis*).

RINGED GREAT BRITAIN AS NESTLINGS.

	<i>Ringed.</i>		<i>Recovered.</i>
Norfolk	29.6.30	Pas-de-Calais, France	—.4.35
Ditto	27.6.31	Calvados, France	3.8.34
Ditto	15.6.34	Ditto	26.8.34
Ditto	6.6.33	Gold Coast, W. Africa	3.9.34
Lancashire	3.6.34	Ditto	16.6.35

BLACK-HEADED GULL (*Larus r. ridibundus*).

It will be noticed that four birds in this list were caught and re-ringed and it is to be hoped that some of them may in the future yield double records. Three of them are due to the efforts of Mr. P. A. D. Hollom in catching gulls at the London Reservoirs at night.

RINGED ABROAD AS YOUNG.

	<i>Ringed.</i>		<i>Recovered.</i>
Hs. C15420	Helsingfors, Finland	3.6.32	Norfolk 19.1.33
Hs. C18579	Ditto	7.6.34	Essex —.1.35
R. E87962	Hiddensee, Pomerania	13.7.33	Dublin 30.11.34
R. E98690	Brandenburg, Germany	29.5.34	Norfolk 10.11.34
G. 17140C	Västmanland, Sweden	10.6.33	Cheshire 16.10.33
G. 19176C	Gotland, Sweden	17.6.30	London 28.12.33
G. 17245C	Ditto	17.6.33	Cambridge 23.12.33
G. 11453C	Ditto	24.6.33	Kent —.3.34
G. 6147C	Öland, Sweden	21.6.26	Hampshire 3.3.34
G. 27723C	Ditto	17.6.33	Lancs. 26.2.34
G. 22631C	Ditto	18.6.32	Cornwall 28.9.33
G. 28785C	Ditto	18.6.34	Essex 3.2.35
G. 27086C	Maklappen Is.	30.5.33	Yorks. 26.1.34
G. 31887C	Ditto	18.6.34	Ditto 19.12.34
G. 26956C	Ditto	5.7.33	Norfolk 6.12.33
R. E68559	Schleswig-Holstein	1.7.31	Sussex 23.9.34
R. E79770	Ditto	8.7.32	Lancs. 15.12.34
			(caught and re-ringed Witherby 402364).
R. E102415	Ditto	8.7.34	Middlesex 8.2.35
			(caught and re-ringed Witherby RV7887)
H. 564794	Ditto	2.7.33	Kent —.8.34
H. 570973	Ditto	26.6.34	Cheshire 18.11.34
H. 571758	Ditto	9.7.34	Middlesex 27.1.35
H. 565148	Ditto	8.7.34	Ditto 22.2.35
			(caught and re-ringed Witherby RV7963)

BLACK-HEADED GULL—(continued).

RINGED ABROAD AS YOUNG.

	<i>Ringed.</i>		<i>Recovered.</i>
H. 570731	Schleswig-Holstein	11.7.34	Middlesex 1.2.35 (caught and re-ringed Witherby RV7795)
L. 71427	Texel, Holland	22.6.29	Kent 26.1.33
L. 60644	Ditto	21.6.30	Cambridge —.12.33
H. 561700	Silesia, Germany	3.6.33	Middlesex 1.11.34
H. 67633A	Saxony, Germany	4.6.31	Somerset 5.1.35
R. E103288	Ditto	1.7.34	Bucks. 22.1.35
R. E103466	Ditto	1.7.34	Middlesex 14.1.35
Pe. C702	Eastern Bohemia	24.6.34	Surrey 2.10.34

RINGED GREAT BRITAIN IN WINTER.

	<i>Ringed.</i>	<i>Recovered.</i>
Middlesex	25.2.34 Jylland, Denmark	22.1.35

COMMON GULL (*Larus c. canus*).

RINGED ABROAD AS YOUNG.

	<i>Ringed.</i>	<i>Recovered.</i>
Hs. C11655	Aland Is., Finland	13.6.31 Durham 5.2.33
R. E75146	Hiddensee, Pomerania	4.6.32 Kent 31.1.35
G. 13957D	Öland, Sweden	25.6.31 Perth. 18.1.34
G. 19548D	Ditto	27.6.33 Kent 14.11.33
G. 2668D	Bohuslän, Sweden	3.7.29 Lincs. 28.2.34
G. 5524D	Halland, Sweden	29.6.29 Ditto —.12.33
G. 9238D	Ditto	29.6.31 Gloucester. 27.11.33
G. 20449D	Ditto	25.6.33 Kent 13.1.34
G. 12920D	Hallands Väderö	2.7.31 Yorks. 17.11.33
G. 15284D	Tylön, Sweden	25.6.32 Norfolk 10.10.32
G. 17881D	Ditto	24.6.33 Cornwall —.1.34
G. 18056D	Ditto	24.6.33 Yorks. 8.10.33
G. 13698D	Maklappen Is.	26.6.31 Hampshire 25.3.34
Sk. X5146	Jylland, Denmark	—.7.25 Sussex 25.3.34

HERRING-GULL (*Larus a. argentatus*).

RINGED GREAT BRITAIN AS NESTLING.

	<i>Ringed.</i>	<i>Recovered.</i>
Jersey	24.6.34 Loire Inf., France	1.11.34

LESSER BLACK-BACKED GULL (*Larus f. graellsii*).

RINGED GREAT BRITAIN AS NESTLINGS.

	<i>Ringed.</i>	<i>Recovered.</i>
Westmorland		
[Foulshaw]	16.8.33	Sjælland, Denmark 1.8.34
Ditto	27.7.34	Loire Inf., France 25.4.35
Lancashire	28.6.34	Douro, Portugal —.10.34
Ditto	24.6.34	Beira, Portugal —.9.34
Ditto	15.7.34	Algarve, Portugal 18.1.35
Ditto	10.6.34	Casablanca, Morocco 2.2.35

GREAT BLACK-BACKED GULL (*Larus marinus*).

RINGED GREAT BRITAIN AS NESTLING.

<i>Ringed.</i>		<i>Recovered.</i>	
Pembrokeshire	18.7.34	Vendée, France	21.1.35

KITTIWAKE (*Rissa t. tridactyla*).

RINGED GREAT BRITAIN AS NESTLING.

<i>Ringed.</i>		<i>Recovered.</i>	
Berwickshire	22.7.34	Kattegat, Sweden	22.8.34

GREAT SKUA (*Stercorarius s. skua*).

RINGED IN GREAT BRITAIN AS NESTLING BY LEIDEN MUSEUM.

<i>Ringed.</i>		<i>Recovered.</i>	
L. 68155 Noss, Shetland	29.6.33	Seine Inf., France	6.9.33

RAZORBILL (*Alca torda*).

RINGED GREAT BRITAIN AS ADULT.

<i>Ringed.</i>		<i>Recovered.</i>	
Sutherland	29.6.32	Lofoten Is., Norway	—.7.34

SOUTHERN GUILLEMOT (*Uria a. albonis*).

The bird listed below as recovered in Basses Pyrénées was reported by a fisherman, who gave us some interesting information on being asked how he got the bird. He states that off St. Jean de Luz the fishermen use these birds to guide them to shoals of sardines and anchovies. Sometimes a few Guillemots will be seen diving. Then one is shot and cut open and if it is found that it has recently swallowed a sardine the nets are immediately cast. At other times the Guillemots diving cause the fish to rise near the surface and this attracts the gulls thus indicating the whereabouts of the shoal. In bad weather Guillemots are shot for food and, when skinned, are excellent with sauce, says the fisherman.

RINGED GREAT BRITAIN AS NESTLINGS.

<i>Ringed.</i>		<i>Recovered.</i>	
Pembrokeshire	14.7.34	Morbihan, France	4.10.34
Ailsa Craig	1.8.34	Basses Pyrénées, France	27.2.35

NOTES

NOTICE TO RINGERS.—Ringers who have not already done so should now send in their schedules of the birds they have ringed during the season. A special form for the list of totals ringed has already been issued to each ringer, and it is particularly requested that this form shall be filled in and accompany the schedules in every case. *Separate* lists should be sent in at the same time of all birds recovered, and those who have done any considerable amount of retrapping are asked to apply for a retrapping form.—H.F.W.

VARIATIONS IN THE WEIGHTS OF BIRDS.

THE notes by Mr. G. Marples entitled "Some results of trapping and ringing" (*antea*, pp. 22-23) prompt me to make a comparison with my own records on the subject. I have a small garden of about a third of an acre, surrounded by well-wooded estates, and which I use as a trapping station for ringing. It is situated ten miles west of Paris. Although I annually ring many hundreds of birds it is only recently that I have begun systematically weighing them, and the following list is of only twenty-two species. The majority is of species common to England and France, but some, such as *Parus*, *Erithacus*, *Prunella*, etc., are the continental forms. As these are at times met with in England I have not omitted them. Weights are given in grammes.

Species.	Sex	Weighed	Max.	Min.	Average
Hawfinch (<i>C. c. coccothraustes</i>)	... im.*	1	—	—	29.22
Greenfinch (<i>Chloris c. chloris</i>)	... ♂	5	28.66	26.40	27.60
" "	... ♀	1	—	—	25.70
Serín (<i>Serinus c. serinus</i>)	... ♀	1	—	—	11.49
Bullfinch (<i>Pyrrhula p. coccinea</i>)	... ♂	5	22.85	19.31	21.31
" "	... ♀	3	22.79	20.76	22.03
" "	... im.	5	21.79	19.59	20.98
Chaffinch (<i>Fringilla c. cælebs</i>)	... ♂	2	25.10	24.89	24.99
" "	... ♀	1	—	—	23.10
" "	... im.	2	21.46	15.95	18.71
Tree-Sparrow (<i>Passer m. montanus</i>)	?	3	22.00	19.23	20.65
Great Tit (<i>Parus m. major</i>)	... ♂	2	21.04	18.30	19.67
" "	... im.	7	16.98	15.82	16.44
Blue Tit (<i>Parus c. cæruleus</i>)	... ♂	11	12.19	10.26	11.21
" "	... ♀	11	10.70	9.09	9.97
" "	... im.	11	11.42	9.63	10.52
Crested Tit (<i>Parus c. mitratus</i>)	... ♂	2	15.77†	10.50‡	13.13
" "	... ♀	2	13.70	10.22	11.96

* Immature. † This abnormally heavy bird was retaken on several occasions, always in company with the heavy female below. ‡ Always taken in company with the female below.

Species.	Sex	Weighed	Max.	Min.	Average
Marsh-Tit (<i>Parus palustris</i>) ...	?	3	11.07	10.62	10.83
Spotted Flycatcher (<i>Muscicapa s. striata</i>) ...	?	5	16.07	13.13	14.37
Pied Flycatcher (<i>Muscicapa h. hypoleuca</i>) ...	?	6	16.77	14.15	15.37
" " " " " im.		4	14.55	12.65	13.23
Chiffchaff (<i>Phylloscopus c. collybita</i>)	?	24	8.91	6.10	7.37
Willow-Warbler (<i>Ph. t. trochilus</i>) ...	?	2	8.37	7.45	7.91
Wood-Warbler (<i>Ph. s. sibilatrix</i>) ...	?	9	10.57	7.49	8.88
Blackcap (<i>Sylvia a. atricapilla</i>) ...	♂	7	20.28	17.30	18.27
" " " " " ♀		8	19.35	17.25	18.16
" " " " " im.		5	20.29§	15.53	16.94
Song-Thrush (<i>Turdus e. philomelos</i>)	?	1	—	—	61.49
Blackbird (<i>Turdus m. merula</i>) ...	♀	3	100.08	93.14	96.32
Redstart (<i>Phænicurus p. phænicurus</i>)	♂	10	17.16	12.10	14.85
" " " " " ♀		4	16.05	14.22	15.18
Robin (<i>Erithacus r. rubecula</i>) ...	?	10	23.35	15.90	18.85
" " " " " im.		12	19.39	8.56	15.80
Hedge-Sparrow (<i>Prinella m. modularis</i>)	?	5	22.33	20.19	20.95
" " " " " im.		3	19.45	18.17	18.62
Wren (<i>Troglodytes t. troglodytes</i>) ...	?	12	10.40	7.60	9.13

§ An immature male of about two months.

I would draw attention to the fact that my records are divided wherever possible into sexes and a distinction has been made between adult and immature birds. No young birds have been included under the latter heading unless fully able to fly and feed themselves. I cannot help thinking, in studying Mr. Marples's records, that some of his averages are, perhaps, confused by the inclusion of immature birds. As will be seen by my figures, these may considerably change the averages unless separated. It is of interest in this respect to note that the heaviest records I have obtained for certain species have been of birds less than three months old.

The deeper one goes into the fascinating study of weights in living birds, the more problems present themselves. Kendeigh has shown in his masterly study "The Role of Environment in the Life of Birds", that a considerable number of factors control weight fluctuations and there is certainly a large field for study in this direction. I have not yet sufficient data to draw profitable conclusions, but it is already obvious from the records of birds which have been repeatedly weighed throughout the year, that there is considerable fluctuation in weight which is not explainable solely in terms of seasonal variation in the weight of body fat and feathers. The weight of a hen bird, during the raising of a family, drops rapidly below average, as is to be

expected: most of my Blue Tits' records (adults) were made during this period. But whether this is from decreased food consumption, due to long periods of incubation, or from increased activity in feeding the young, remains to be proved. A few simple experiments have inclined me to the latter belief. Birds kept in captivity and without light (thus inactive) lose weight far less rapidly than if kept captive in daylight (thus permitted to flutter constantly). Further, the rate of loss is not constant, as can be seen from the following figures:—

<i>Species</i>	<i>Sex</i>	<i>How Kept</i>	<i>Initial Weight</i>	<i>After 1 hr.</i>	<i>% Lost</i>	<i>After 2 hrs.</i>	<i>% Lost</i>
Redstart	♂	In daylight	16.75	15.75	5.95	15.40	2.22
Blackcap	♂	In daylight	19.02	17.25	9.32	16.94	1.80
Blue Tit	♂	In darkness	11.37	11.02	3.07	10.74	2.54

A Chiffchaff kept captive in daylight for three hours lost 1.66 gr. (22.50 per cent.) of its initial weight. Another, of a similar initial weight, kept inactive for three hours under similar weather conditions lost only .39 gr. (5.29 per cent.) of its initial weight. The very rapid drop in weight which takes place during the first hour is partially explained by the evacuation of the contents of the stomach. The Blackcap referred to in the above table, for instance, had been gorging itself on laurel berries, which account for so large an initial drop in weight. After this the fæces become very liquid and consist chiefly of excretions from the kidneys and originate in the continued metabolism of the body. Further losses take place in the moisture given off from the lungs and air sacs. The expenditure of energy in fluttering, which takes place if the bird is confined in daylight, raises the rate of metabolism and thus accelerates the consumption of the body's reserve of substance.

Kendeigh has shown that in average weather birds kept inactive survive 35.8 hours without food or water and, after the initial evacuation of the stomach contents, lose an average of 0.8 per cent. in weight per hour. If kept in an active state they survive only 28.3 hours and lose weight at the rate of 1.2 per cent. per hour. His experiments have shown clearly that humidity, temperature and wind play important roles in effecting weight variation. If these conditions are noted carefully and in detail immediately each trapped bird is weighed it should be possible, when a sufficient number of records has been collected, to apply the findings of Kendeigh's laboratory research to birds in natural conditions. A collection of such information would certainly be of value in

studying the controlling factors of local abundance, migratory movements and kindred problems. I would, however, emphasise the need for completeness: the omission of one factor may easily falsify hours of painstaking study, as I know from my own experience. G. R. MOUNTFORT.

[In the above note the weight of an immature Hawfinch is given as 29.22 (grammes)—Surely there is some mistake here? I have records from various sources of seven birds, all presumably adult, which average 54.88, max. 59.9, min. 48.74 gr. As M. Mountfort rightly points out, immature birds often weigh more than adults.—F. C. R. JOURDAIN.]

IMMIGRATION OF CROSSBILLS.

We have to thank a number of correspondents for sending us notes on Crossbills (*Loxia curvirostra*). The numbers seem generally to be somewhat small and the immigration not of very great importance. For previous records see *antea*, pp. 112-113.

E. LOTHIAN.—Five, Tynninghame, August 5th (G. Charteris).

LANCASHIRE.—Thirteen flying over High Moor, near Oldham, July 1st (F. Taylor); one, Hightown, late August (E. Hardy).

CHESHIRE.—Small parties, Delamere Forest, since June 27th (G. H. Clegg); considerable flock there July 6th and August 25th (A. W. Boyd); two, Little Budworth, July 21st (S. B. Wood).

STAFFORDSHIRE.—At Enville Common, where previously reported (*antea*, p. 112), numbers, at least sixty, in air at same time, and probably one hundred present, August 31st (J. S. Wood and H. G. Alexander).

SHROPSHIRE.—Twenty to thirty, Church Stretton, July 3rd and later, and in August, thirty to sixty; at Munslow numbers, mid-July onwards; a few Bayston Hill, September 1st (H. E. Forrest); six in north near Welsh border, August 11th to 13th (J. C. S. Ellis).

NORFOLK.—Flock twenty-five, Hickling, June 22nd (H. G. Attlee).

BEDFORDSHIRE.—Large numbers Bletchley, August (J. S. Emerton).

BUCKINGHAMSHIRE.—Small flock Amersham, July 18th (J. B. Watson); about ten High Wycombe, August 26th-27th (K. Redpath).

SURREY.—Seven Oxshott, June 24th, two or three Wisley, June 28th, and nine or ten July 26th, two Esher July 8th (H. G. Attlee); twenty to thirty Hindhead, July 1st, about twenty near Haslemere, July 3rd (R. C. Blockey); three Redhill, July 23rd (P. W. Sandeman); a few Camberley, September 9th (G. E. Lodge).

SUSSEX.—Eight near Heathfield, July 16th (H. G. Attlee).

DORSET.—Flocks of twenty to thirty east Dorset heaths, July and August (F. C. R. Jourdain).

WILTSHIRE.—Six near Redlynch, July 30th, but three seen there on April 28th (C. M. R. Pitman).

SOMERSET.—About ten Winscombe, July 1st (J. Grubb).

DEVON.—At Torquay in August (K. L. Skinner).

ANGLESEY.—Twenty-four Penmon, June 27th to July 9th, roosted every night in same pine tree (R. R. M. Jones).

DENBIGHSHIRE.—Six to nine Llangollen, July 21st to August 25th (A. R. Sumerfield); three Berwyn, August 22nd (R. Warren).

ROSSITTEN, E. PRUSSIA.—Mr. H. G. Alexander informs us that when there with Mr. F. R. Barlow, from August 15th to 22nd, they constantly saw flocks of Crossbills from five to thirty, and Dr. Schüz informed them that a large immigration had taken place a few weeks earlier, while at the same time a number of Great Spotted Woodpeckers had appeared.

TREE-SPARROW'S NEST IN A THORN HEDGE.

MR. E. W. BOWSER, on June 9th, 1935, found a nest of a Tree-Sparrow (*Passer m. montanus*) in the thorn hedge of his kitchen garden at Tytton Hall, near Boston, Lincs. The nest contained four fresh eggs and the bird was sitting and, when disturbed, came out and perched close by. The nest was about 5 ft. 6 ins. up, of the ordinary type, but domed. I have twice seen the eggs and the nest. J. S. REEVE.

SWALLOW CLUTCHES AND BROODS.

LAST year I gave details of five pairs of Swallows (*Hirundo r. rustica*) nesting at Stoughton Vicarage, near Chichester, Sussex (*antea*, Vol. XXVIII., p. 146). This year (1935) the same number of pairs nested and the following table gives the details :—

<i>Nest.</i>	<i>Eggs : Clutch.</i>	<i>Addled or Destroyed.</i>	<i>Hatched.</i>	<i>Young. Died.</i>	<i>Brood.</i>
A	5	0	5	1	4
B	5	0	5	0	5
C	3	3	—	—	—
D	6	0	6	5	1
E	5	0	5	0	5
AA	4	0	4	0	4
BB	4	0	4	0	4
CC	5	0	5	1	4
EE	4	0	4	0	4
CCC	4	0	4	0	4
10 Nests	45	3	42	7	35

The letters A and AA represent the first and second nests of a pair, and so on for the other letters.

The eggs at nest C were robbed by boys, so that there was no brood to record. The birds soon nested again, and thus CC represents the second clutch and first brood ; whilst CCC represents the third clutch, and second brood of this pair.

For the ten nests recorded the average clutch was 4.5, the average brood 3.5. Of the total 45 eggs laid 93.33 per cent. hatched.

It will be noticed that there was a much higher mortality with the first than with the second broods. With the first broods (A to E) 6 young died out of the 21 hatched, a

mortality of 28.57 per cent. ; with the second broods (AA to CCC) only one died out of the 21 hatched, a mortality of 4.76 per cent. The nest at D, in the porch of my house, was a specially hard case. Six eggs were laid and 6 young hatched. Of these young one fell from the nest when only a day or two old ; two more fell out when nearly fledged ; two were found dead in the nest, and only one survived. As the pair had no second nest in the porch I thought they had given up housekeeping, but on September 3rd I discovered a nest in a dormer window with four fledged young. This in all probability was the second brood, as the second nests of all the other pairs could be accounted for. I have called the nest DD, but have not included it in the table.

Of the total 11 nests (10 in the table and the extra one DD) only two were used a second time. Of these, one had two broods in it (B and BB), the other had the stolen clutch and one brood (C and CC). In all the other cases the birds changed their nests for the second laying.

The first egg was laid on May 8th (nest A), the last egg on July 27th (nest CCC).

HOWARD J. EMMET.

BREEDING PLACES OF FULMAR PETRELS IN SUTHERLANDSHIRE.

HAVING visited the islands Roan and Neave on several occasions, I was interested in the note (*antea*, p. 117) concerning the breeding there of the Fulmar Petrel (*Fulmarus g. glacialis*). On June 18th, 1930, I explored most of Roan on foot but found no signs of Fulmars about the cliffs, although Mr. Donald Murray, keeper at Tongue House, had informed me that they had bred on the ledges there for several years. Neave was also visited on the same date and there were Fulmars, quite twelve pairs in all, on the west and south-west cliffs. By means of a narrow sheep track I was able to descend to one of the ledges where three pairs were sitting, and discovered one egg in a shallow scrape in the loose soil covering the rock ledge. The birds flew round close to me uttering a subdued chatter ; Fulmars at Duncansby Head (Caithness), on May 24th, 1931, used similar notes.

In 1931 visits were made to Roan and Neave on May 26th and 27th. There were a good many Fulmars about the west cliff of Roan—I have no note of the numbers present—and about a dozen pairs once more on Neave. Two or three pairs were also at the mainland cliffs to the east of Skerry (opposite Neave), but I do not know whether they bred there. Both at Roan and Neave the Fulmars showed a preference for

ledges covered with the loose reddish soil. Mr. John Mackay, of Skerry, informed me that Fulmars had only come to these islands in "recent years" and that they were increasing.

JAMES W. CAMPBELL.

STATUS OF BREEDING FULMAR PETRELS IN YORKSHIRE.

FULMAR PETRELS (*Fulmarus g. glacialis*) have now extended their range along the greater part of the Yorkshire coast. They are present, beside the large colony in the Speeton Cliffs, at Gristhorpe, Redcliffe, Scarborough, Burniston, Cloughton, Ravenscar, Whitby, and wherever there exists a cliff suitable for their requirements. Even the low cliff at the Cayton Bay Waterworks has its resident pairs during the spring and summer.

This species first appeared in the Whitby district in 1922 when odd birds were seen. In 1923 some twenty or thirty pairs were observed, but it could not be proved that they were breeding there, but young were reared in subsequent years, and were observed by Mr. F. Snowden to remain on the nesting ledges until August 16th.

A few birds came in and out of the Scarborough Castle Cliff in 1921. I first saw them on June 23rd of that year, but they did not breed and soon left. They have returned every year since, about 100 pairs being there this year. Most of them do not appear to breed, but a few pairs do so every year. Old birds can be seen feeding the young ones and now and then a nestling falls down the cliff and is picked up dead.

W. J. CLARKE.

BLACK-WINGED PRATINCOLE IN CO. MAYO.

We have received for preservation a Black-winged Pratincole (*Glareola nordmanni*) which was shot at Belmullet, co. Mayo, on August 22nd, 1935. The bird appeared to be immature. It was shown in the flesh to Mr. C. B. Moffat who confirmed the identification.

W. J. WILLIAMS.

OYSTER-CATCHER LAYING SIX EGGS.

In June, 1935, a nest of an Oyster-Catcher (*Hæmatopus o. occidentalis*) at Eskmeals, on the Cumberland coast, contained six eggs. Only one pair of birds was in attendance.

I have only seen two clutches of four, one at Ravenglass, Cumberland, many years ago, and one on Walney Island, North Lancashire.

In the *Practical Handbook* one clutch of six is recorded.

H. W. ROBINSON.

GREY PLOVER IN HERTFORDSHIRE.

At the end of May and beginning of June, 1935, there were a good many passing Ringed Plovers and Dunlins at the Tring Reservoirs. On May 29th a Grey Plover (*Squatarola squatarola*) was feeding on the lush sward—the legacy of the long drought—which carpeted most of the floor of the reservoir at Startop's End, where Lapwings and Redshanks were nesting. By the next day it had gone. The Grey Plover is a rare bird in Hertfordshire at any season, and, so far as I know, it has not been noticed before on the spring passage at Tring.

CHAS. OLDHAM.

A NEW NAME FOR THE BRITISH REDSHANK.

DR. C. B. TICEHURST in the *Bulletin of the British Ornithologists Club*, Vol. LIII., p. 17, October 31st, 1932, has pointed out how the British Redshank differs from the typical form. He uses the name *Tringa bewickii* of Rennie, 1831, for the British race, but this name cannot be used for a Redshank because Montagu in the *Supplement* to the *Ornithological Dictionary*, 1813, preface dated July, introduced *Tringa bewickii* for the "Red-legged Sandpiper" of Bewick's *History of British Birds*, 1804, preface dated July 3rd, Vol. ii., p. 113. This bird of Bewick's is certainly not a Redshank.

Bewick had used the name *Tringa erythropus* for the bird he described as the Red-legged Sandpiper.

As there is no name available for the British form of the Redshank, and Ticehurst has shown how it differs from the typical form, I propose for the British race the new name of

Tringa totanus britannica, nom. nov.

GREGORY M. MATHEWS.

LAND-RAIL LAYING TWICE IN TWENTY-FOUR HOURS.

ON May 28th, 1935, at 10 p.m., I found a nest of a Land-Rail (*Crex crex*) containing two eggs of an unusual type. On the 29th there were three eggs, and on June 2nd the nest contained eight eggs, and on June 4th the completed clutch of eleven eggs.

It will be noted that on two occasions this female produced two eggs in twenty-four hours.

There is not the slightest possibility of two hens laying in the nest, for the eggs were all of a markedly unusual and exceedingly pretty "capped" form.

The nest was situated in a light tuft of grass—a few feet from a sunk fence bordering on the tennis-ground and rose beds in Rocklow, co. Tipperary.

I must have seen over one hundred nests of the Land-Rail and all have been adjacent to a hedge or “escape” of some kind—a few, indeed, right in the dyke, or, but this is rare, on the side of a bank, like a Yellow Hammer's. Some writers state that it builds in the centre of a grass field but I have never found one in that position.

The bird was very tame and fearless, and would allow herself to be stroked on the nest—quite a common procedure with nesting Corncrakes.

C. J. CARROLL.

RECOVERY OF MARKED BIRDS—*Correction*.—The Gannet (No. 113036) recorded at the top of p. 75 should have been under the heading of “ringed as full-grown” not as nestling. The last Manx Shearwater in the list on the same page, i.e. No. R.V. 7507 was ringed by Mr. R. M. Lockley and not by Mr. Wontner-Smith as stated.

SPOTTED FLYCATCHER ATTEMPTING TO BUILD ON OCCUPIED WREN'S NEST.—Dr. W. H. Dobie sends us a note from Mr. E. C. Dobie in which he records the attempted breeding of a pair of Spotted Flycatchers (*Muscicapa s. striata*) in Cheshire on the top of an occupied nest of a Wren (*Troglodytes t. troglodytes*). The attempt was frustrated by the young Wrens scrambling out on to the platform of the Flycatcher's nest. Spotted Flycatchers frequently build on unoccupied nests and a list of thirteen species so utilized will be found in *British Birds* Vol. XI, p. 87 and to these may be added Marsh-Tit and Wren (*cf.*, *B.B.*, Vol. XIX, p. 71).

SONG-THRUSH LAYING SEVEN EGGS.—Captain J. S. Reeve, of Léadenham, Lincs., informs us that on May 31st, 1935, a clutch of seven eggs of a Song-Thrush (*Turdus e. ericetorum*) was brought to him from a garden in a neighbouring parish. There are about six other recorded instances of this number, as well as of eight and even nine, which were almost certainly from one hen.

GARGANEY IN DERBYSHIRE.—Mr. E. M. Nicholson informs us that he had very good views of a Garganey (*Anas querquedula*) on the pool at Kedleston on August 3rd, 1935.

DUSKY REDSHANK IN ISLE OF MAN—*Correction*.—In Mr. P. G. Ralfe's notes on the Isle of Man in the August issue the name of the Dusky Redshank was unfortunately printed on page 72 as Dusky Redstart.

REVIEW.

The Abbotsbury Swannery. By the Earl of Ilchester, O.B.E. *Proc. Dorset Nat. Hist. & Arch. Soc.*, LV., pp. 154-164.

THE recent correspondence in *The Times*, the *Field*, and other newspapers, evoked by the threat, since confirmed as a certainty by decision of the Minister, of the establishment of an R.A.F. camp with bombing and machine gun practice ranges in the vicinity of the Chesil Bank, between Abbotsbury and Weymouth, makes a notice of the above paper by Lord Ilchester appropriate at the present time, though it was actually read a year ago.

The greater part of it is taken up with historical matter that has never before been made available to ornithologists, though several accounts of the swannery have been published by well-known writers in the past. The origin of this famous swannery, a unique survival from mediæval days, and to be classed to-day as one of our national monuments, is lost in the mists of time. So far as documentary evidence goes its earliest mention is to be found in the Court Rolls of the Manor of Abbotsbury, then belonging to the abbot of that monastery, in 1393. With this as a starting point Lord Ilchester traces its history, by evidence from the Melbury muniments and papers in the Public Record Office, to the present day. Briefly stated, up to the dissolution it remained the property of the successive abbots, till surrendered by Abbot Hardy, in 1541. In the same year the King granted certain possessions of the late monastery to Sir Giles Strangwaies for forty years, and two years later a similar grant was made, without limitation of time. By these, Sir Giles and his successors became the owners of the East and West Fleets containing the breeding and feeding grounds of the Swans, and these have since remained through various vicissitudes the property of Lord Ilchester's family.

At the end of the historical account Lord Ilchester refers briefly to the fluctuations in numbers in recent years, and shows how the welfare of the Swans is absolutely dependent on an abundant and healthy growth of *Zostera* in the waters of the Fleets. Before referring more particularly to this latter subject, records of numbers that we have gathered from other sources may perhaps be of sufficient interest to be mentioned.

In 1591 the numbers were officially given as 500, of which 410 were white Swans and 90 were cygnets.

In 1750-51 Bishop Pococke stated there were about 500.

In 1774. Hutchins (*Hist. of Dorset*), 600-700, formerly 1,500.

In 1865. Lord Ilchester, 700-800.

In 1866. (A writer in *Truth*), less than 700.

In 1867. J. McDowell (*Good Words*), 800-900.

In 1873. Mansel Pleydell (*Cat. Birds of Dorset*), upwards of 1,000.

In 1876. John Colebrooke (*Land and Water*), about 1,100, 640 engaged in incubation, the rest immature birds.

In 1877. Rev. A. C. Smith (*Zoologist*), over 300 nests.

In 1878. J. H. Gurney (*Zoologist*), fully 1,300, about 650 incubating.

In 1879 and 1880. Lord Ilchester, over 1,500.

From 1881 to 1888. Mansel Pleydell (*B. of Dorset*), average 800.

In 1883. Lord Ilchester, about 400.

Since 1888. Lord Ilchester, average about 800.

The dependence of the birds on the *Zostera* is shown particularly by the fluctuations in the numbers between 1880 and 1883, and to a lesser degree between 1865 and 1866. In the winters of both 1865 and 1880, the water in the Fleets was frozen to the bottom, imprisoning

the weed in the ice, which was afterwards torn out by the roots on the ice being lifted by a high tide. Many birds thus died of starvation, while others dispersed along the coast and inland. Within the last few years the welfare of the Swans has been seriously threatened by the failure from some supposed microbic agency of the *Zostera marina*, a phenomenon noticed in many estuaries of southern England, Brittany and eastern North America. By 1933 *Zostera marina* had practically disappeared from the Fleets and it is worthy of note that in that year there were under twenty-five pairs of Swans engaged in incubation within the enclosed area at Abbotsbury at the end of May, instead of the usual 200 or more. Since then, fortunately, a growth of an allied species, *Zostera nana*, has to some extent taken the place of the larger species, while the latter is now showing signs of revival. The season of 1935 is reported, as regards breeding numbers, to have been a good average one.

With regard to the Air Minister's decision, the danger of harm accruing to the swannery is concerned solely with their winter feeding grounds. Except for a few odd pairs the birds all nest in the enclosed area bordering the West Fleet at Abbotsbury. Here they will be perfectly protected from disturbance, as hitherto. Out of the nesting season, however, they disperse over the East Fleet, and it is here that they find the *Zostera* beds in greatest profusion that supply their food for the rest of the year. It is here, near Chikerel, some five miles east of Abbotsbury, which may be said to be the Swans' headquarters in winter, that the proposed machine gunnery range is to be established. In his memorandum, announcing his decision, the Minister stated that he had himself flown over the area and that the birds there took no notice. He omitted to state, however, that this took place in the summer, when the bulk of the birds were absent at their breeding station; nor did he state if he had bombarded the adjoining Chesil Bank with bursts of machine gun fire! It seems futile to speculate on what effect this may or may not have on the birds when they are all assembled on their winter feeding grounds, but, as the editor of the *Field* has aptly remarked in this connexion, there should not be the risk of even this uncertainty when the continuance or well being of such a unique feature as the Abbotsbury Swannery is in question. The decision, however, has been taken, and it remains to be seen what will happen. It is only to be hoped that the Minister will prove to have been right and most other people wrong!—N.F.T.

LETTERS.

THE BIRDS OF LAKELAND.

To the Editors of BRITISH BIRDS.

SIRS.—The Carlisle Natural History Society has undertaken to produce a "Catalogue of the Birds of Lakeland" giving the status and distribution of each species as from the time of Macpherson's *Vertebrate Fauna of Lakeland*, 1892. This work, covering Cumberland, Westmorland and North Lancashire, will be published as a volume of the Society's transactions.

For the purpose of publication, a committee has been formed comprising Miss M. Garnett, T. L. Johnston, Ritson Graham and myself. We should be grateful to have the project made known to readers of *British Birds* by courtesy of whom notes and records might be contributed.

The Museum, Carlisle.

ERNEST BLEZARD,
Hon. Secretary.

BREEDING-HABITS OF RED-LEGGED PARTRIDGE.

To the Editors of BRITISH BIRDS.

SIRS,—At the end of his interesting article "Breeding Biology of Birds" (*antea*, Vol. XXIV., p. 144), the Rev. F. C. R. Jourdain has a note referring to Major Portal's evidence that the hen of the Red-legged Partridge (*Alectoris r. rufa*) lays two separate clutches, one of which she hatches, while the cock hatches the other (*antea*, Vol. XVII., p. 315). He says: "in the few cases where I have met with newly-hatched young I could not see any sign of more than one parent".

In 1933, early in July, I encountered a brood of Red-legged Partridge chicks not more than four or five days old. I was not able to get an accurate count of them but there were not less than sixteen, and I should say probably more. Both parents were with them, one leading them as they crossed in front of me and the other close up in the rear. The whole covey, chicks and parents, ran across my path into a field of corn.

This year (1935), on July 24th, I saw a pair of Red-legged Partridges running along the top of a stone wall dividing two fields. As I approached they dropped off the wall into the field on the far side, and on looking over the wall I saw them running off accompanied by a brood of chicks. In this case the chicks were considerably older. There were at least eighteen of them; though again I could not get an accurate count. But the behaviour of the parents was the same as before—that is, one was leading the covey and the other was running along behind. It is interesting that in the only two cases where I have seen families of this bird, my experience has been the exact reverse of Mr. Jourdain's. If there are two clutches it would appear that when they are hatched they soon amalgamate under the protection of both parents.

E. ARNOLD WALLIS.

SIRS,—Does not the fact that the female Red-legged Partridge, when laying eggs, deposits them at intervals of two, and even three, days, point to the possibility of her laying two clutches in two separate nests at the same time?

With regard to Mr. E. C. Stuart Baker's statement that many keepers never found bigger clutches than about a dozen, I may mention that on June 4th, 1928, I had a bird which began to sit on 28 eggs here. This bird had 26 eggs on May 24th, when I found the nest, 27 on the 26th and 28 on May 29th. This seems to be the exception which proves the rule, for presumably all the eggs of this hen were laid in one nest.

J. S. REEVE.

LEADENHAM, LINCS.

[I find among my records of dates, clutches of 13, 14, 15, 16, 17, 18 and 20 eggs recorded.—F.C.R.J.]

[It may be worth noting (though the observation is very incomplete) that at Chobham, during the summer of 1934, there was a pair of Red-legged Partridges constantly on my rabbit warren, but unfortunately I did not find a nest. On August 5th I saw one parent with six half-grown young. I could not see any more young nor the other parent, but have no proof they were not there. On the 10th there were two parents and nine young, all, so far as one could see, of the same size, and this covey of eleven was still intact in January.—H.F.W.]

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CONTENTS OF NUMBER 6, VOL. XXIX., NOVEMBER 1, 1935.

PAGE

Notes on Population Problems and Territorial Habits of Chiffchaffs and Willow-Warblers. By M. Philips Price ...	158
The Orielton Decoy—Past and Present. By C. W. Mackworth-Praed and H. A. Gilbert ...	167
Obituary—Archibald Thorburn ...	172

Notes :—

Migrants seen in Shetland (H. J. R. Pease and Dr. T. G. Longstaff) ...	173
Large Movement of Jays in Hampshire (Major M. Portal) ...	174
Immigration of Crossbills ...	175
Incubation Periods of Wood-Lark and Whitethroat (H. F. Witherby) ...	176
Pied Wagtails depriving Swallows of their Prey (P. A. Clancey) ...	176
Notes on Breeding of a Pair of Spotted Flycatchers (J. H. Owen) ...	177
Blackbird eating Flowers (Ruth Baillie) ...	178
Robins changing Mates between Broods (S. Baron) ...	178
Lesser Spotted Woodpecker in Anglesey (H. E. Forrest) ...	179
Hobby passing Food on the Wing (J. B. Watson) ...	179
Hobby eating Swallow or Martin in Air (W. E. Glegg) ...	179
Pintail with Brood, and Whoopers in Inverness-shire (C. A. Norris) ...	180
Exhausted Storm-Petrel revived with Olive Oil (J. A. Sweetlove and F. J. Burlinson) ...	180
A Party of Black-necked Grebes in Middlesex (J. B. Watson) ...	181
Mortality amongst Young Red-throated Divers (W. Serle, Jr.) ...	181
Wood-Pigeons and Green Woodpeckers feeding on Cherries (J. S. Elliott) ...	182
Shore Birds and Molluscs (Dr. J. W. Campbell) ...	183
American Pectoral Sandpiper in Somerset (H. Tetley) ...	183
Spotted Redshanks in Northumberland (H. Tully) ...	185
Mortality among Young Common Terns in Lancashire (H. W. Robinson) ...	186
Arctic and other Terns in Middlesex (W. E. Glegg) ...	186
Sooty Tern in Norfolk (J. Sladen Wing) ...	187
Sooty Tern seen in Kent (H. G. Alexander) ...	187

Short Notes :—

Song-Thrush laying Seven Eggs. Movement of Ringed Teal from Abroad—Correction. Scandinavian Lesser Black-backed Gull in London. ...	187
---	-----

Review :—

<i>Every Garden a Bird Sanctuary.</i> By E. L. Turner ...	188
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NOTES ON POPULATION PROBLEMS AND TERRITORIAL HABITS OF CHIFFCHAFFS AND WILLOW-WARBLEDERS.

BY

M. PHILIPS PRICE.

DURING the seasons 1934 and 1935 I undertook an investigation of the nesting and song grounds of the Chiffchaffs (*Phylloscopus c. collybita*) and Willow-Warblers (*Phylloscopus t. trochilus*) in a tract of country about 2,000 acres in extent, in the parishes of Taynton, Tibberton, Rudford and Bulley, to the west of Gloucester, in the Severn Valley. Previous to this I had made a survey during the last eight years over two smaller tracts of country within this 2,000 acres. The subjects on which I sought information were as follows :

1. The relation between the song territories and nesting sites of Chiffchaffs and Willow-Warblers and the vegetation and floral associations of the area investigated.
2. A census of the total Chiffchaff and Willow-Warbler population and the fluctuations of the same from season to season.
3. The presence or absence of an unmated adult population of these two species which obtain territory but no mate.
4. The extent to which territories are fluid and subject to change during the course of the mating season.

Taking No. 1 first, I found, after working for a few years over the smaller areas referred to, that the territories occupied by the Chiffchaff and Willow-Warbler population in the main coincide, during the breeding period at least, with certain types of vegetation and floral associations. Over the whole of the area investigated I found roughly seven of such associations, excluding well-grazed pasture, arable and grass orchards. On lands of the latter types of husbandry these birds are almost always absent. The seven associations to which I refer are as follows :

(a) Half-shaded oak woods, thin coppice with hazel, open grass patches and scattered bramble or grass rides in woods in half shade.

(b) Full shade under large oak coppice, underwood died out, occasional sloe and hawthorn.

(c) Untrimmed bushes of hawthorn, sloe, dog-rose and bramble, growing low on ground out of old unlaid hedge or along side of lane or edge of wood.

(d) Young plantations of trees from one to ten years old, or young oak and hazel coppice in which no canopy yet formed, strong ground flora consisting of woodland grasses, bramble and dog-rose, and low bushes scattered about of sloe, birch, willow and hawthorn.

(e) Derelict ground unplanted and uncultivated, approximating to the primeval association, unaffected by human agency, scattered trees of birch, willow, oak and ash, large hawthorn bushes, dog-rose and privet, in open spaces woodland grasses in thick tufts with occasional thicket of bramble.

(f) Thick grass uncut for some years, either in bends of streams or by side of overgrown hedge, uncut for several years, or in shallow ditch or along grassy bank.

(g) Cultivated gardens.

Now, since the Chiffchaff makes its nest a few inches above the ground, the best type of association suitable for its nest is obviously (c), where bramble or dog-rose protrude from the hedges and afford a low network of vegetation in which a nest may be interwoven and be raised the necessary height from the ground. But similar conditions may also be found in (d) and (e), though not, perhaps, in the same quantity. It is in these three types of association that I found almost all the Chiffchaffs' nests. In the 2,000-acre area, in 1935, six nested in (c), two in (b), two in (d), and one in (g), and in 1934 six in (c), three in (a), two in (d), and one each in (b) and (e). In the last two years the untrimmed hedge clearly was the favourite nesting site. In an area of two farms in Taynton, between 1927 and 1935, all nesting sites found were in (c). In an area of 200 acres of woods in the parishes of Rudford and Bulley, between 1927 and 1935, there were equal numbers of nesting sites in (a) and (c), and two in (d), indicating that half-shade oak woods with bramble as ground vegetation also has its attractions.

The Willow-Warbler's nest, being on the ground and usually well-covered by vegetation, is generally found in associations where unmown grasses have grown for some years in corners which for some reason are difficult to cultivate. This is found in (e) and (f), but also to some extent in (a) and (b), where sedges and tufts of shade-bearing poas and fescues cover woodland spaces. But the point to notice here is that the vegetation associations are always changing and consequently what is suitable for nesting sites over a term of years

may gradually become not so. Thus in Mains Wood (Tibberton) I found a Willow-Warbler's nest in five successive years (with only one break) along a grassy ditch in an open space by a ride. A little lower down the wood I found a Willow-Warbler's nest in four successive years in a grassy patch between some young trees. In all cases these nests were never more than twenty yards away from where they had been the previous year. As to whether this was the same bird that came back year after year, I have something to say later. But after 1932 the trees began to shade these two sites and the grass tufts began to die out. The birds then no longer nested there.

As regards the male song territories in contra-distinction to the nesting sites of the Chiffchaffs and Willow-Warblers I found that no sites were suitable that did not contain a certain number of trees. Thus some hedges which would otherwise come into (c) association and be suitable for Chiffchaff ground would contain no Chiffchaffs, apparently because there were no trees or insufficient trees to provide prominent points from which song could be made. Possibly, also, absence of feeding ground in the leaf canopy of trees plays a role in causing such sites to be neglected.

Now, as regards No. 2, the census of total population of these two species and its fluctuations, I obtained the following figures for two years on the larger 2,000-acre area :

			Total Population.	Unmated Singing Cocks.	Nesting Sites.	Number of Broods Reared.
<i>Chiffchaff.</i>						
1934	...	...	41	15	13	8
1935	...	...	33	11	11	6
<i>Willow-Warbler.</i>						
1934	...	...	38	20	9	8
1935	...	...	44	16	14	12

It will be seen here that there was a rise in the Willow-Warbler population in 1935 against the previous year and a rather bigger drop in the Chiffchaff numbers during the same period. Also to be noticed is the fact that there was a larger proportion of nests destroyed or a smaller number of broods reared in the case of the Chiffchaff than in the case of the Willow-Warbler. The losses were particularly heavy in 1935, but this is accounted for by the great frost on the morning of May 17th which froze the eggs of at least four nests. The earlier nesting dates of the Chiffchaffs at a time when the foliage is not fully out and the fact that the nests are easily

visible to winged vermin are probably some of the causes of the greater losses among these birds' broods.

A census over eight years on a 200-acre tract of wood and orchard country, part of above 2,000 acres, revealed the following figures :

			Total Population.	Unmated Singing Cocks.	Nesting Sites.	Number of Broods Reared.
<i>Chiffchaff.</i>						
1928	...	...	5	1	2	2
1929	...	...	4	2	1	1
1930	...	...	5	5	0	0
1931	...	...	8	2	3	3
1932	...	...	8	2	3	1
1933	...	...	10	6	2	1
1934	...	...	12	4	4	2
1935	...	...	13	3	5	2
<i>Willow-Warbler.</i>						
1928	...	...	7	1	3	3
1929	...	...	11	3	4	4
1930	...	...	11	3	4	4
1931	...	...	16	4	6	5
1932	...	...	16	2	7	4
1933	...	...	6	0	3	3
1934	...	...	9	3	3	3
1935	...	...	14	2	6	5

A census of 300 acres of grass farm land in the parish of Taynton, over nine years, also within the 2,000-acre area, gave the following figures :

			Total Population.	Unmated Cocks.	Nesting Sites.	Number of Broods Reared.
<i>Chiffchaff.</i>						
1927	...	...	5	1	2	2
1928	...	...	5	1	2	2
1929	...	...	3	1	1	1
1930	...	...	3	1	1	1
1931	...	...	3	1	1	1
1932	...	...	6	2	2	1
1933	...	...	7	3	2	1
1934	...	...	6	2	2	0
1935	...	...	4	2	1	1
<i>Willow-Warbler.</i>						
1927	...	...	5	1	2	2
1928	...	...	4	2	1	1
1929	...	...	11	3	4	3
1930	...	...	6	2	2	1
1931	...	...	6	4	1	2
1932	...	...	6	2	2	1
1933	...	...	6	4	1	1
1934	...	...	6	4	1	1
1935	...	...	3	1	1	1

On the whole it appears that the numbers remain constant, though there are exceptional years, as, for instance, 1929, in the last list, among the Willow-Warblers, where for some unknown reason there were four nests in an area where before and after there were only one and two. In the main, however, it may be said that in the woodland and orchard tract in the first list the Chiffchaffs have shown a tendency to increase both in total numbers and in nesting sites and the same applies to the Willow-Warblers, but with more fluctuations. In this tract extensive cutting and planting of old oak woods with young oak, ash and Corsican pines took place from 1924 to 1930, and during the years of the census these young plantations were providing increasing areas of the (*d*) type of vegetation association, where previously the (*b*) type existed. This is quite enough to account for a gradual increase of suitable feeding grounds and nesting sites.

An example of this can also be seen in the area when a tract of oak wood (Big Dean, Bulley) was cut in 1930, and was planted in the following year. In 1932 the first unmated Willow-Warbler appeared and held song territory there for most of May and June. A single bird appeared in each following year and in 1935 two pairs reared broods there, as the young plantation had by this time a thick ground mat of *Poa nemoralis*, *Holcus*, bramble and dog-rose.

On the farm land in the second list, on the other hand, the tendency seems towards a decrease of both species, both total population and nesting sites. Here owing to the gradual growing up of hedgerows, and the overgrowing of bushes by the sides of a brook and of oak spinneys, the (*c*) and (*d*) type of vegetation has been on the decrease. Hedges that have come ripe have been laid and the undergrowth growing from them removed, thus destroying the nesting sites. On one of the farms two or three miles of hedges have been laid between 1927 and 1932.

In connection with the nesting sites of these birds my investigations showed a remarkable persistency in some of these over a period of years. In one place in a certain wood there was a nesting site of a Willow-Warbler for seven out of the eight years recorded, and all these sites were within twenty yards of each other. In another piece of rough sedge ground there was a Willow-Warbler's nest for six years in succession, and all the sites were within a short distance of each other, and in another case for four years. This may be due, as I show above, partly to the consistency of certain types of vegetation

and floral associations suitable for nesting sites of these species. But I had long suspected that in some cases the owners of these nesting sites which occurred year after year in the same places were the same birds. I have described (*antea*, p. 80) how I caught and ringed a hen Willow-Warbler in May, 1934, on a nest at the edge of a certain wood, and caught her again a year later on a nest within twenty yards of her previous year's nest. I can therefore definitely state that some of these recurring nesting sites are owned by the same bird which returns from its winter haunts.

The third point that I have raised is the unmated section of the population of these species. I have been forced to the conclusion by my observation that a certain section of the Chiffchaff and Willow-Warbler population select singing positions and remain there during the breeding season for weeks on end. No female is seen in their territory and no nest after careful search in all likely spots can ever be discovered there. In the figures that I have given above, a fluctuating but quite definite percentage of territories is occupied by such cocks. This fact, when established over a term of years, precludes any other interpretation than that they must be territories of unmated birds.

My reasons for coming to these conclusions are as follows: Each year when I was making my census of these birds I visited their territories every three days, sometimes every five days between the middle of April and the middle of June, visiting each of the territories in order. I first noted on a map the exact position of all singing cocks seen. I watched for other non-singing birds and marked them on the map, carefully noting when pairs appeared. Then I undertook a search of the vegetation for nests and noted on the map all that were found. I made a special point of searching for nests in areas where birds seemed unmated. By the middle of May most of the nesting sites could be known. A few whose first nests had been disturbed selected fresh sites after the middle of the month. There remained the single birds, which seemed to have no mates or nests, on searching the available nesting sites. These birds, I found, when I visited their ground, spent most of their time singing from selected points or feeding on vegetation within their territory. Another point which distinguished them from the mated birds was their failure to behave as if they had young during the later days of May and early June. Their neighbours, the mated birds, always uttered, on my approach, the well-known,

plaintive warning note after the young were hatched. Lastly, the presence or absence of nesting sites was checked by coming to the ground after the young had flown and for three or four days after by watching the old and young birds in the territory round the nesting site, till they had moved off to other ground. These are the points which I watched for and on which I base my conclusion that a portion of the Willow-Warbler and Chiffchaff population each year does not breed. I do not claim that this unmated population is only or even mainly male, though these are more easy to hear and more conspicuous because of the singing posts they occupy. Females are undoubtedly there, too, though they are much more difficult to detect.

I have also some reason to think that certain areas of ground are occupied mainly by unmated cocks. In two successive years, on about fifty acres of grass orchard, meadows and overgrown hedgerows, I detected three unmated Willow-Warbler cocks in adjacent territories. They remained there till the end of the breeding season and no nest was found or young seen in spite of careful searches. In the first of these two years a Willow-Warbler pair nested on the edge of the territories occupied by the three mateless birds but not in the second year. In the same area I observed during June 1934, small flocks of adult Willow-Warblers which may have been unmated cocks or hens, possibly first year birds hatched the previous season, moving about and feeding in the hedgerows. Their whole behaviour indicated that they were not influenced by the seasonal mating stimuli. On the other hand the three singing cocks in this same area were evidently affected by the urge for mating, for they spent hours each day singing from vantage points at the tops of trees which they definitely seemed to regard as their ground. It seems an interesting, but as yet unproved, speculation whether unmated cocks and hens of these two species have tracts of land which they frequent during the mating season and feed or sing in it according to the intensity of, or lack of, the mating urge which they experience. This, however, I can say definitely, that in some areas there are more mated birds than in others, where they are sometimes quite absent. In the former case, where there are unmated cocks, they generally seem to hold territory on the edge of the mated pairs.

As regards No. 4, the fluidity of territories, I made some investigations during the spring of 1935 to obtain data on this point. I tried to find out if there was any change in the

territories of both mated and unmated birds as the season advanced.

I first took 40 acres of rough meadow land with overgrown hedges and some derelict mounds. The territory observations at four different periods in May and June were as follows :—

	<i>Unmated Cocks.</i>	<i>Pairs seen without nests.</i>	<i>Pairs with nests.</i>
<i>Willow-Warbler.</i>			
7/5/35	1	2	0
20/5/35	1	2	0
24/5/35	1	1	1
17/6/35	2	0	2

Until May 20th, 1935, the two mated pairs did not seem to be in fixed territory. Then one of them was fixed in a territory and soon after the nest was found. The other pair got fixed about a week later. By the middle of June an unmated cock had come into territory hitherto apparently part of the territory of one of the pairs which, however, the latter did not now seem interested to defend.

In another tract of land of about 60 acres, with a green lane and tall elms in the hedgerows, a Willow-Warbler pair moved about till May 15th, 1935, when it selected a nesting site and became fixed. Meanwhile two unmated Chiffchaffs and one Willow-Warbler cock held definite song territories till May 23rd, 1935, when they became very indefinite in their positions and by the middle of June they were all gone.

In a small area of long winding meadows by a brook there were four unmated Willow-Warbler cocks on May 7th, 1935. By June 19th, 1935, there were only two unmated cocks and one nesting pair. Again, in about 40 acres of oak woodland, young hardwood plantations and a rough, ungrazed bank, two pairs of Chiffchaffs were seen moving on April 28th, 1935. By May 17th, 1935, they were settled in territories and nests were duly found. There were two unmated cocks in this area. One of them seemed to keep to one position in the wood, but the other seemed to have no fixed territory.

In a tract of 50 acres of meadow, with brook and rough alder groves and tall elms, there were four unmated Willow-Warblers on May 10th, 1935. By May 21st there were three unmated and two mated pairs with nests. On the 30th there were two unmated and the two nesting pairs, and on June 4th there were four unmated and the two nesting pairs with their fledged young.

It thus seems probable that some of the unmated birds hold definite territory for some time but that others do so

for only a short time and frequently move off to other ground. But not even the mated pairs' territories are quite stable. I had a good instance this year of two pairs of Chiffchaffs nesting in the bramble undergrowth of an oak wood in the parish of Rudford. The nests were not more than 40 yards apart along a central ride. Both pairs seemed to feed outside the area where the nests were placed. In fact the nests seemed to be right on the edge of the feeding grounds.

CONCLUSIONS.

1. There does appear to be a definite connection between the territories of Chiffchaffs and Willow-Warblers on the one hand and associations of vegetation on the other.

2. The growth of vegetation brings about changes in the ground flora over a number of years and shows some signs of affecting the numbers of these species on a given area. Other fluctuations of population, however, occur, for which there is no apparent cause. There is definite proof that some hen Willow-Warblers come back to the same nesting ground in succeeding years.

3. A certain, though fluctuating, number of birds fail to get mates each breeding season. Of these the males are the most conspicuous on account of their song. Some of these have definite territory which they occupy for weeks. There is some evidence of unmated hens going about in small flocks during the breeding season, but more data are needed here. There is indication that some areas are occupied more by mated and some more by unmated birds.

4. Not all territories are rigid. Those of the unmated birds show every grade of fluidity, though some are very definite for given periods. The feeding territories of mated birds do not necessarily coincide with the nesting sites.

THE ORIELTON DECOY—PAST AND PRESENT.

BY

C. W. MACKWORTH-PRAED AND H. A. GILBERT.

THE early history of this decoy, which is situated near Pembroke, can be found in *The Book of Decoys*, pp. 147-149, written by Sir Ralph Payne-Gallwey. The decoy is fifteen acres in extent, though the fowl rest nowadays on only a relatively small extent of the water—namely, the shallow water at the eastern end. The lake is artificial. It was made in 1820 by the Saurin family, to whom the estate belonged until 1919, when the property was sold and the decoy fell into disuse.

In 1868 the first pipe was dug on the north shore, but this was a failure for various reasons, obvious to any one who examines the remains which are visible to this day.

However, in spite of this failure, a pipe (the present No. 2) was made in 1871 by a gamekeeper named Sharpe, who came from Norfolk. When this proved successful, another pipe (No. 3) was made parallel to the first, in 1873; and yet another (No. 1) was dug on the north shore in 1874. These two pipes were made by George and T. Gilbert Skelton, members of the famous family of decoy men of that name. The last of the Skelton family—another George—grandson of the above, died in harness, as a decoy man, at Orwell Park, in 1919. Finally, one of the Williams' from Suffolk made the pipe (No. 4) on the southern side. This pipe is less than 40 yards long, and is probably the shortest decoy pipe ever made; nevertheless, it is very successful.

The decoy was worked by the proprietors, or lessees of the estate, principally for their own amusement, and "the numbers of birds taken varied with the amount of time devoted to decoying". During the war years the fowl were driven away by the aircraft which continually passed over the pond on their way to hunt submarines.

Lately the decoy book, which recorded the daily captures of duck from 1877 to 1919, has come into our hands through the kindness of Major Saurin. This book records the capture of roughly 42,000 wild fowl, of which some 5,000 were Mallard (*Anas platyrhynchos*), 10,000 Wigeon (*Anas penelope*) and 17,000 Teal (*Anas crecca*), while in addition 160 each of the two species Pintail (*Anas acuta*) and Shoveler (*Spatula clypeata*) were also obtained. As regards other species of wild fowl, Gadwall (*Anas strepera*) provide frequent entries

(15), one or two being caught almost annually until 1908. Odd birds were also shot in flight to the sea in the years 1914-1918; as also were Smew (*Mergus albellus*). In our experience Gadwall are nowadays extremely rare visitors to the district.

Another curious record is that of two Garganey (*Anas querquedula*) which were caught in February, 1889. Thomas Wogan, the decoy man (1883-1908) came of a long line, and must have been familiar with all kinds of fowl, while Colonel Saurin was a well-known sportsman, and very interested in the decoy. Hence, early as is the date, identification must, in our opinion, be accepted. In those days few captive wild fowl were kept, but it is possible, even then, that these two birds may have been escapes. In this connexion hybrids, common in captivity, should be considered. "Hybrid" duck are mentioned among the bag on three occasions (December 23rd, 1878, December 11th, 1879, and March 1st, 1888). No clue is given as to what mixtures these hybrids were due. Possibly they may have been escapes, as, indeed, certainly was the Chilian Pintail recorded on December 30th, 1908.

Tufted Duck (*Nyroca fuligula*) first appear in December, 1889, after which there is no further record of this bird until 1913, when they are mentioned many times. Pochard (*Nyroca ferina*) also, were rarely captured, and are only mentioned on five occasions, though they were freely seen and shot on flight from 1912-1918. Both these diving duck are, however, difficult to decoy, as they always dive back past the decoy man, but can be easily taken in a trap. Traps were not used until 1912. The absence of these two species in the book during the early years cannot therefore be taken to prove that the birds themselves were not present on the decoy pond. Scaup (*Nyroca marila*) were caught on two occasions, while Golden Eye (*Bucephala clangula*) and Goosander (*Mergus merganser*) only figure in one entry each. Wild Geese are recorded twice, a Barnacle (*Branta leucopsis*) in 1878, and a Grey Lag (*Anser anser*) in November, 1914. This latter was caught as it fed into No. 4 pipe late one evening.

The decoy fell into disuse after 1919 until we obtained a lease in 1934, and restored three of the pipes, primarily with a view to ringing wild fowl. After long years of disturbance, the fowl did not, of course, return immediately in great numbers. Teal readily availed themselves of the quiet and protection of the pond, until, on many occasions

at least 1,000 were present. Wigeon, however, were rarely seen until February, 1935, when their numbers gradually increased until some 300 were resting on the decoy by day. Shoveler, Tufted Ducks, Mallard and a few Pintail and Pochard completed the assembly. There were, however, never more than 1,400 fowl to be seen, whereas in old days thousands had made it their winter home. An ancient photograph is in existence which shows many acres of water densely covered by a flock of thousands of Wigeon. Mr. R. H. Mackworth-Praed tried to take a census in 1912, during his tenancy of the decoy, and estimated that the pond "in full flower" carried 10,000-12,000 duck, 90 per cent. of which were Wigeon. It would appear that certain species of ducks have decreased in the district. Take, for example, the record year, 1890-1891, when 2,521 fowl were taken, as follows:—405 Mallard, 1,395 Wigeon, 682 Teal, 31 Pintail, 7 Shoveler, 1 Gadwall. The numbers of Mallard have greatly decreased. Even as late as the season 1902-3, 446 were taken. Mallard appear to be largely resident in the district and not migratory. Certainly the local stock of Mallard is increased, to some extent, by visitors to the tidal waters, as soon as they are driven away from their haunts inland by frost, but we continually recapture duck which have been already ringed on the decoy, and get no returns from a distance. It would be impossible nowadays to capture 400 of this species even if the whole local stock used the decoy. The cause of this decrease is not far to seek. The length of the season renders the Mallard an easy prey to the gunner. The season begins too early and allows immature young birds to be slaughtered wholesale, while, under the influence of the mild climate of Pembrokeshire, the Mallard nests very early, and many instances are known to us, where the duck has been shot off her nest, legally, in the month of February. Last year a brood could be seen on the decoy in early March. At any rate the indigenous stock of Mallard has been reduced by 80 per cent. in the north of the county during the last 20 years; and the gunner is solely to blame, in our opinion. Wigeon, though still plentiful, do not visit us in the great numbers of olden time. Possibly this is due to factors abroad, over which we have no control in this country, such as drainage and excessive decoying in Holland, as well as the great diminution of the *zostera* grass. Another potent cause is probably the aircraft base at Pembroke Dock. Wigeon dislike aircraft intensely. The mere sight of an aeroplane

causes them to take to the water and dive continually with a sudden flip of water in exactly the same manner as they adopt when a Peregrine (*Falco peregrinus*) puts in an appearance. If an aeroplane roars by within half a mile, they rise and depart for the open sea. We are informed that Wigeon have been driven away from other estuaries by aircraft (e.g. the Welsh Dee).

Teal, however, do not appear to have decreased so appreciably. They are, however, jumpy, nervous little birds, which never appear to settle long in one locality, and their numbers vary greatly from day to day. After heavy rain when the floods are out, they leave the decoy in masses and do not return until the surface water has gone. In February last (1935) we ringed a Teal which was shot four days later by a gunner at Wareham in Dorset. In fact, with us the numbers of Teal are very variable. The birds are here and gone to-morrow. Pintail did not visit us in numbers and at no time could more than five be seen on the decoy. In February, 1934, Shoveler were present to the number of several score. It is, however, on the return migration in March, after the season is over, that these birds appear to be most numerous. A few Tufted Ducks were always on the water, but never more than thirty could be counted.

This year (1935-36) an attempt will be made to make a daily census, and a record of the numbers of fowl to be seen; and it is hoped that several hundred duck will be ringed. One fact has been learnt by us in our first season as amateur decoymen, and that is the deadliness of the method of catching duck in grim silence within a few yards of their unsuspecting companions. In 1934, though we knew nothing, and could learn our trade only by methods of trial and error, we caught more birds than were obtained during the last year's working of the decoy—far more than could have been obtained by the gun. The use of smouldering turf was necessary in order to deaden human scent. The subject of the scenting powers of wild fowl is, however, a vexed one, on which the literature is voluminous.

Lastly, what is the explanation of the fact that ducks are attracted up the pipe by a dog? Sir Ralph Payne-Gallwey is of opinion that ducks are braggarts and rush forward to drive him away, and that so long as the dog appears to be retreating, so long will they follow, believing they are so doing. In our opinion, however, it is merely an intense curiosity, even an indignant curiosity, which lures them to their doom.

When Teal are sleeping on the "yackoop" and the dog jumps through his hole right among them, they merely dash out a few yards on to the water, and turn round looking startled and indignant. When the dog appears at each successive jump, they swim forward craning their necks to see and showing all the signs of curiosity alone, and not of being braggarts.

NOTE 1.—Yackoop (=wake up) is the dog jump between the breast-wall screens, *i.e.*, the screens which shelter the breastwall where the fowl rest on the right-hand side of the entrance to a decoy pipe.

NOTE 2.—Mr. G. C. S. Ingram has kindly sent us the following records of Gadwall and Garganey in the coastal counties of South Wales :

	<i>Gadwall.</i>	<i>Garganey.</i>
Monmouthshire ...	Once recorded many years ago.	No records.
Glamorgan ...	Five recorded over a period of 50 years. Last record Llanishen Reservoirs, November 2nd, 1927.	Ten recorded during last 50 years (latest 1931).
Carmarthen ...	No records.	Three only, and none recent.
Pembrokeshire ...	Only recorded at Orielton.	Orielton records, and another, also at Orielton, November 21st. 1902 (J. Wynne).

OBITUARY.

ARCHIBALD THORBURN.

By the death, on October the 9th, 1935, of Archibald Thorburn, in his seventy-sixth year, the world has lost the greatest exponent of Ornithological Art. Thorburn was the son of Robert Thorburn, A.R.A., who was a miniature painter, and had his tuition in art from his father. He chose water-colours as the medium for his work, and very early in his career, in fact, almost at once, he was recognized as quite pre-eminent in the art of depicting birds in their natural surroundings. He broke away from the stereotyped fashion of treating birds for illustrations as merely scientific maps of plumage; and instead, while keeping strictly to scientific accuracy, he imbued his illustrations with such artistic values as to make each subject a high-class work of art—science and art going hand in hand, which is as it should be. One of the first publications in which he did a large proportion of the plates was Lord Lilford's *Birds of the British Isles*. These, being reproduced by the highest class chromo-lithography, were truly a revolution in Natural History book illustration, and these plates and those of many other books which he illustrated have never been approached in excellence by anyone else. He also brought out books written by himself. *British Birds*, *British Mammals*, *A Naturalist's Sketch-book*, all profusely and beautifully illustrated, the last-mentioned being, perhaps, the cleverest of all. But it was not only book illustrations that made his life's work. He painted pictures in much greater profusion than he made illustrations for books; and always examples of his work were to be seen at Baird Carter's (now Embleton's) Gallery, in Jermyn Street. He was a fine colourist, and revelled in gay coloration, but was equally a master of all the tones and values that go towards making a good work of art. His favourite subjects for pictures were game birds and wild fowl; but he was also a fine landscape painter, and as a painter of flowers was not to be excelled. His painting was very direct and bold, and he knew so exactly what he wanted to do when painting a picture that his work was very rapid, and his brush-work most dexterous. He was equally at home painting a covey of Ptarmigan in the snow on a four-foot piece of paper as he was doing a Bullfinch on a spray of blackthorn in bloom, only a few inches in size. His beautiful work has set a very high standard for those who plod in his footsteps in the same line of life; but—there will never be a second Thorburn.

He married, in 1896, Miss Constance Mudie, who, with one son, survives him.—G.E.L.

NOTES

MIGRANTS SEEN IN SHETLAND.

AMONG migrants seen by me at Sumburgh in the extreme south of the mainland of Shetland during a visit from August 31st to September 12th, 1935, the following are perhaps worthy of mention as not often recorded in Shetland :—

ORTOLAN BUNTING (*Emberiza hortulana*).—Two on September 1st.

LINNET (*Carduelis cannabina*).—A pair, September 3rd, the cock bird still having a good deal of rose colour on the breast.

SPOTTED FLYCATCHER (*Muscicapa striata*).—One, September 7th and 8th.

PIED FLYCATCHER (*Muscicapa hypoleuca*).—One or more seen daily. On September 3rd, five, and on the 4th, three or more.

WHITETHROAT (*Sylvia communis*).—One on September 3rd, 4th and 11th.

LESSER WHITETHROAT (*Sylvia curruca*).—One on September 3rd, 4th, 5th and 7th.

WHINCHAT (*Saxicola rubetra*).—One on September 3rd and 8th.

REDSTART (*Phœnicurus phœnicurus*).—Two, September 3rd, one, September 5th and 6th.

SWALLOW (*Hirundo rustica*).—One, September 4th, two on the 8th.

SAND-MARTIN (*Riparia riparia*).—One, September 3rd.

SWIFT (*Apus apus*).—One, September 4th, two on the 7th, and several on the 8th.

GREAT SPOTTED WOODPECKER (*Dryobates major major* (?)).—A dead one was brought to the hotel by a boy on September 1st. One came down the chimney of the hotel on the 3rd. (One seen on the 6th and the 8th. On the 11th, one of the lighthouse-keepers told me that several had been about the light during the past fortnight. These were probably of the Northern form.

RUFF (*Philomachus pugnax*).—On September 1st three parties of Ruffs were seen totalling over forty individuals. A few on the 4th and 6th.

LITTLE STINT (*Calidris minuta*).—Three on September 1st. Seen also subsequently.

BAR-TAILED GODWIT (*Limosa lapponica*).—A few seen daily throughout the period of our visit.

GREAT SNIPE (*Capella media*).—One shot by Mr. G. K. Yeates on September 5th.

COMMON TERN (*Sterna hirundo*).—Terns, whether *macrura* or *hirundo*, were present in small numbers throughout the period of our visit. The only certain identification was of one Common Tern with two young birds of the year on September 12th.

I may add that on my way south I stopped a night at Troon, Ayrshire, where, on September 16th, I saw six Ruffs and two Curlew-Sandpipers on the golf links. One of the latter species had the upper breast pinkish-buff and a pronounced, white eye-stripe. I also saw three Greenshanks by the shore there on the same date.

H. J. R. PEASE.

THE following migrants were observed by me in the north-east Mainland, Shetland, this year (1935):—

GOLDEN PLOVER (*Charadrius apricarius* ? subsp.), the first migratory flocks, were seen on August 23rd.

BLACK-TAILED GODWIT (*Limosa limosa*).—Two were seen very close during two hours, while I was fishing Burga Water, on August 24th.

SWIFT (*Apus a. apus*).—A young bird entered my room at Lunna House, on August 25th, and an adult was seen on August 30th, at Laxo.

HOUSE-MARTIN (*Delichon u. urbica*).—Two were at Lunna House on August 25th and 26th.

GREAT SPOTTED WOODPECKER (*Dryobates m. ? major*).—One frequented Lunna House (v. Evans and Buckley's Fauna, p. 103), together with three Meadow-Pipits (*Anthus pratensis*), from August 28th to 30th. TOM G. LONGSTAFF.

[Mr. A. Holte Macpherson informs us that Mr. L. Bruce wrote to him that Great Spotted Woodpeckers were reported from "all over Shetland" in July; the first seen by Mr. Bruce on Unst was on August 31st.—EDS.]

LARGE MOVEMENT OF JAYS IN HAMPSHIRE.

ON October 3rd, 1935, at 9.30 a.m., a flock of 37 Jays (*Garrulus glandarius*) passed over going S.S.W., flying high, down the Meon Valley (Hants.). Three miles south of this, a keeper counted 45 going over about 11 a.m., and a forester counted 53 or 55 at mid-day passing over high.

A very reliable watcher wrote to me as follows:—"On October 4th, at 9 a.m., on the Winchester-Southampton

road near Stoneham, a flock of 45 passed flying W.S.W., and out of shot, followed by smaller lots of five and seven—at times more. I counted 187 in all and then had to leave.—A.A.”

On October 4th, in the morning, the head keeper and an under keeper on the Red Rice Estate, Andover, counted 35 Jays in a flock high up and going S.W. The head keeper informs me that there are now (October 20th) fully two hundred Jays on the estate, whereas there were scarcely any a month ago.

On October 8th, between 7.45 a.m. and 8.30, a lot of seven passed high, followed later by three and some single birds, flying S.S.W., here at Swanmore.

The head-keeper at Buriton, Petersfield, informs me that he saw 73 in a flock go over Butzer Hill on September 30th or October 1st, and the head keeper at Idsworth saw 53 fly high over Windmill Hill, about three miles south of Butzer Hill, on October 3rd.

Normally we have, perhaps, a dozen Jays here in 250 acres of woodlands.

M. PORTAL.

[We shall be glad to have any further observations on this very interesting movement of Jays. Major Portal has kindly procured a number of specimens which are being preserved and will be compared to determine the subspecies.

The birds have evidently been feeding to a large extent on acorns, and the movement may be connected with scarcity of food in other parts of England, so that a marked decrease of Jays (as well as increase) in any area should be notified—H.F.W.]

IMMIGRATION OF CROSSBILLS.

For previous notes on this subject see *antea*, pp. 112-113, 148-149.

SHETLAND.—Mr. A. Holte Macpherson is informed by Mr. Laurence Bruce that he saw six Crossbills on Hermaness on June 23rd, and that there were many more on other parts of Unst. The birds stayed at least two weeks.

CHESHIRE.—Small parties late September, Thornton Hough, Wirral (E. Hardy).

WORCESTERSHIRE.—In Lickey Woods, after absence of several weeks, twenty to thirty reappeared middle of September and at end of month at least fifty, which flew from one larch, and probably these were not all (H. G. Alexander).

SURREY.—Small parties during September at Reigate and Leith Hill (H. G. Alexander), and Carshalton (P. H. T. Hartley), more than twenty, Poulston, early October (B. D. Moreton).

SUSSEX.—Sixteen at Hadlow Down on October 1st (E. Dann), one near Tunbridge Wells September 19th (H. G. Alexander).

KENT.—Parties of six to twenty Hayes, Keston and Shirley, about September 22nd onwards (P. W. Ratcliff).

DEVON.—Six July 6th, twelve on 15th. Budleigh Salterton, about forty second half July, Woodbury Common (W. Walmesley White).

SOMERSET.—First noted near Winscombe about June 24th, twelve July 5th, disappeared some time then reappeared October 11th (D. B. Grubb).

INCUBATION-PERIODS OF WOOD-LARK AND WHITETHROAT.

As I have been fortunate enough to obtain, with the assistance of others, three incubation-periods of the Wood-Lark (*Lullula a. arborea*) with some exactness, I give below the details of these observations.

The nests were all observed at Gracious Pond Farm, Chobham, Surrey.

1933. April 5th, nest with one egg; 7th, three eggs and bird sitting; 20th, in morning, eggs intact, but at 6 p.m. one nestling just hatched and in the morning of 21st two hatched, the third egg addled. Counting a day as 24 hours this gives a period of $13\frac{1}{2}$ to 14 days.

1933. Another pair; April 9th, nest with two eggs; 10th, morning, three eggs and bird sitting; 23rd, evening, not hatched; 24th, 7 p.m., three hatched and down on young dry (observed by P. A. D. Hollom). Period 14 days (possibly $14\frac{1}{2}$).

1935. March 25th, one egg; 26th, two eggs; 27th, morning, three eggs and bird sitting; April 11th, morning, three eggs, no young, 5 p.m., two young hatched (observed by J. Axe); 12th, morning, three hatched.

This gives a period of $15\frac{1}{2}$ days, which seems unusually long, but it was carefully observed and there can be no doubt about it.

I may add here the incubation-period of a Whitethroat (*Sylvia c. communis*) taken at the same place—May 17th, three eggs; 19th, five eggs and bird sitting; 31st, not hatched; June 1st, all five hatched—13 days. H. F. WITHERBY.

PIED WAGTAILS DEPRIVING SWALLOWS OF THEIR PREY.

AT Largs, Ayrshire, in August, 1935, I noticed an unusual method adopted by some Pied Wagtails (*Motacilla a. yarrellii*) of obtaining food.

A Wagtail would sit low down on a fence or stone in such a position as to be able to watch all the Swallows (*Hirundo r. rustica*) hawking for flies over the field at once. When a Swallow flying near at hand caught a fly or similar insect the Wagtail would leave its perch and give chase. This

often lasted a minute or two until the Swallow was forced to let go its prey which was snatched up immediately by the pursuing Wagtail.

At first I thought it was only play, with no serious intent on the part of the Wagtail, until one day I saw four Wagtails (all immature birds) doing this at the same time from different points of vantage around the field. The solution came, however, shortly afterwards, when I had the good fortune on two separate occasions to see at close quarters the Swallow drop its prey which was devoured by the Wagtail on the ground.

One would imagine that a Swallow could outstrip a Wagtail, but this was not the case. The Swallow would stop and hover, giving vent all the while to a rather nervous twitter. This gave the Wagtail time to gain on it. The Swallows seemed to me to be really afraid of the Wagtails and they certainly never defended themselves or retaliated.

PHILIP A. CLANCEY.

NOTES ON BREEDING OF A PAIR OF SPOTTED FLYCATCHERS.

THE following notes refer to the activities of a pair of Spotted Flycatchers (*Muscicapa s. striata*) at Felsted, Essex, during the summers of 1934 and 1935. On May 13th, 1934, I noticed that they had arrived and watched them select a site on a ledge behind trellis work, above a window. This site had not been occupied for several years past. Building began on May 18th and the first egg of a clutch of five was laid on the 23rd. Hatching began on June 8th and the young left the nest on the evening of June 23rd. Approximate incubation period thirteen days; fledging period fifteen days. An attempt was made to rear a second brood, one egg (which did not hatch) being laid on July 6th in the same nest.

In 1935 I saw the Flycatchers return to the site behind the trellis early on May 21st, after vainly prospecting in other places. Building began on May 23rd and the first egg of five was laid on May 29th, which were beginning to hatch on June 15th, the young leaving the nest on the evening of June 29th. Incubation period about fourteen days; fledging period fourteen days. Only four young were reared in each season.

A second brood was reared in the same nest: three eggs being laid on July 16th, 17th and 18th, while hatching began on July 31st. A correspondent reported that the young had

disappeared on August 9th, probably destroyed by Little Owls (*Athene n. vidalii*).

The eggs of these birds in both seasons were pale blue, unmarked, almost spherical in shape and slightly mis-shapen. It is curious that this type of egg has occurred here almost annually for many years past, and in a previous note (*B.B.*, Vol. VI., p. 343), I suggested that this was evidence that shell colouring was hereditary.

J. H. OWEN.

[The fact that the pale blue eggs are so frequently abnormal in shape shows that this aberration is pathological. In some cases these have proved to be infertile and the high proportion of fertile eggs in Mr. Owen's record is remarkable.—F.C.R.J.]

BLACKBIRD EATING FLOWERS.

IN October, 1934, I saw a Blackbird in my garden in Edinburgh reaching up for something just above its head. This proved to be a flower of the giant Balsam (the old cottage Balsam); it succeeded in plucking the flower which it took on to the lawn and ate, making three or four bites of it. The bird then perceived a Balsam plant which I had pulled up and laid on the ground, and while I was watching it proceeded to eat four more flowers in the same manner, carrying each on to the grass and making several bites at it, swallowing every scrap. They were all the white-flowered Balsam. The whole Balsam plant has a sweet fruity smell, especially in late autumn. The flowers are very attractive to honey bees.

RUTH BAILLIE.

ROBINS CHANGING MATES BETWEEN BROODS.

DURING April, 1935, near Kingsbridge, south Devonshire, a pair of Robins (*Erithacus r. melophilus*) nested and reared a brood of five young. Both parents were trapped and ringed, the male on the right leg, the female on the left. During May the male Robin, together with an unringed bird, raised a second brood of two young from a clutch of five eggs. A Robin on an adjacent territory together with the ringed female Robin brought off a second brood of one young bird. The first brood in this territory had been raised by two unringed birds.

As Robins are generally understood to mate for life, if possible, other observations on the subject would be of interest.

S. BARON.

[Mr. J. P. Burkitt, in his "Study of the Robin by means of Marked Birds" (see *B.B.*, XVII., 294-303, XVIII., 97-103, 250-257, XIX., 120-124) gave evidence to show that Robins

probably did not mate for life and in at least one case a hen had two broods each with a different cock in one season, though unlike Mr. Baron's still more interesting case, the first cock did not appear to obtain a second hen in the same season.—EDS.]

LESSER SPOTTED WOODPECKER IN ANGLESEY.

MR. RODNEY R. M. JONES informs me that on June 21st, 1935, he observed a Lesser Spotted Woodpecker (*Dryobates m. comminutus*) feeding a young one in the grounds of his house at Penmon, Anglesey. This is a second record for that county—one having been obtained at Bodorgan in October, 1926. Up to now it has never been recorded in Carnarvonshire.
H. E. FORREST.

HOBBY PASSING FOOD ON THE WING.

THE habit of passing food in the air, so common with Harriers, I have not heard mentioned of the Hobby (*Falco s. subbutco*), so it may be worth recording that late in the afternoon of August 3rd, 1935, I observed an instance of this in Berkshire.

I was watching outside a plantation of Scots pines, where I knew a pair of Hobbies to be nesting, when the male, presumably, flew up uttering the Wryneck-like call repeatedly, and carrying something, a small bird I think. After it had flown round in a circle it entered the wood, but almost immediately came out, still calling, whereupon its mate flew out towards it and met it; the first bird then dropped its prey which was caught by the other and carried into the wood.

J. B. WATSON.

[The "pass" of the Hobby was described by Mr. D. Nethersole Thompson in *British Birds*, Vol. XXV., pp. 147-8.—EDS.]

HOBBY EATING SWALLOW OR MARTIN IN AIR.

WHILE I was at Staines Reservoir, Middlesex, on September 15th, 1935, two Hobbies (*Falco s. subbutco*) dashed into the midst of the many Swallows and Martins. The appearance of the falcons was so rapid and unexpected that the significance of their actions was not immediately realized. Both the Hobbies then rose to a considerable height where it was impossible to keep them always in my glass, sometimes a 12 mag. monocular, sometimes a 30 mag. telescope. After the birds had passed some time in the air, they dropped to a lower level and it could be seen that one carried in its talons

an object, which corresponded to the size of a Martin or Swallow, deprived of its chief feathers. After flying about together for some time one Hobby moved off in a southerly direction and the other remained over the reservoir. It rose and fell in its flight and it was observed to be devouring the object in its talons. This apparently completed, it flew off in the direction taken by its companion. I have been asked if I saw any falling feathers. I did not, but at the heights at which the birds at times were this could have happened without the knowledge of the observer. Moreover, the birds were not always in my view and the visibility was far from good. My experiences leave no doubt in my mind that the Hobby, while over the reservoir, killed a small bird, probably a Martin or Swallow, and devoured it while in flight.

WILLIAM E. GLEGG.

PINTAIL WITH BROOD AND WHOOPERS IN INVERNESS-SHIRE.

WHEN at a loch in south Inverness-shire on August 10th, 1935, my brother and I had excellent views of a hen Pintail (*Anas a. acuta*) accompanied by a brood of six young, which we judged to be about three weeks old. The bird swam out into the loch from the bank about seventy-five yards away from us and as we were provided with binoculars and a telescope, and the light was good, we could see the slender and upright neck together with the light cross markings on the tail-feathers, which were conclusive enough evidence.

I may also record here that on August 25th we saw three Whooper Swans (*Cygnus cygnus*) on Loch Meikle, Glen Urquhart. Later, thinking the birds might possibly have been introduced, we revisited the loch and were informed by a keeper that these Swans were quite wild and had arrived on the loch only a fortnight previously. The birds were undoubtedly adult, the entire plumage being white and the bill sharply contrasted black on the anterior part and the lower half of the culmen, and yellow on the basal part and lores extending to the nares. The stiff and almost perpendicular carriage of the neck were most noticeable when compared with the Mute Swan.

C. A. NORRIS.

EXHAUSTED STORM-PETREL REVIVED WITH OLIVE OIL.

A STORM-PETREL (*Hydrobates pelagicus*) was brought to us for identification on September 18th last. It had been picked up that morning exhausted near Bishop Auckland, Co. Durham.

It fed greedily on olive oil from a tea-spoon, and on the 21st was able to fly, when it was returned to the finder, who intended to release it on the east coast. J. A. SWEETLOVE.
F. J. BURLINSON.

A PARTY OF BLACK-NECKED GREBES IN MIDDLESEX.

EARLY on October 5th, 1935, I watched six Black-necked Grebes (*Podiceps nigricollis*) on Staines reservoir. One of the birds left the others and came to about forty yards from where I was standing on the causeway. They were seen later on the same day by Messrs. A. Holte Macpherson and F. R. Finch. In Glegg's *Birds of Middlesex* it is stated that this species has, of late years, been becoming more regular as a winter visitor, and that the number of birds seen range from one to three. The birds were in transition plumage.
J. B. WATSON.

MORTALITY AMONGST YOUNG RED-THROATED DIVERS.

THE normal clutch of the Red-throated Diver (*Colymbus stellatus*) is two eggs, but of several pairs of birds I have had under observation not one has successfully reared two young.

The following data, on which the above statement is based, were obtained on the island of Hoy, Orkney, and comprise all the records of young Red-throated Divers—dead or alive—that I have made. In favourable breeding seasons about eight pairs of Divers breed on this island, in widely separated localities.

- | | | |
|----------|-----------------|--|
| 21.7.35. | Locality No. 1. | One young, alive ; one young, dead. |
| 21.7.35. | Locality No. 2. | One young, alive. |
| 24.7.35. | Locality No. 3. | One young, dead. |
| 24.7.35. | Locality No. 4. | One young, dead. |
| 24.7.35. | Locality No. 5. | One young, alive. |
| 24.7.35. | Locality No. 6. | One young, alive. |
| 3.7.33. | Locality No. 7. | One young, alive. |
| 5.7.33. | Locality No. 4. | One young, alive. |
| 5.7.33. | Locality No. 4. | One young, alive. |
| 14.7.31. | Locality No. 8. | One young, dead. (A newly-hatched chick lying on the nesting pad along with an egg containing a dead half-developed embryo). |
| 14.7.31. | Locality No. 4. | One young, alive. |

Unfortunately, previous to 1935 I did not search the tarns where there were nesting pads for dead chicks, or evidence of an even higher mortality would probably have been forthcoming.

In support of this presumption I find in my notes that in July, 1931, Red-throated Divers *unaccompanied* by young, were observed at two breeding localities. These doubtless were birds that had lost their young, for obviously the birds were not there to feed—as these peaty tarns contain no fish—but because that was their breeding territory. I have since observed that the birds frequent the breeding quarters at least for a short time after the death of the chicks.

Again, on July 30th, 1930, and July 25th, 1935, on one of the larger lochs, where the Divers do not breed, parties of seven and six birds respectively, in full adult plumage, were noted. Were not these birds that had lost their young? In the ordinary course of events both birds are tending their young at this date, either with them at the breeding locality or passing to and from the sea where fish for the young are secured.

Mortality amongst the immature of all species of birds is necessarily great, but the period of highest mortality varies. In the case of the Red-throated Diver the mortality incidence is very high amongst newly-hatched chicks and young up to the age of about two or three weeks old. Why this should be so is difficult to determine. Their chief natural enemies in Hoy are the Black-backed Gulls, but a young Diver is ever on the alert, and dives when danger threatens. Yet a Black-backed Gull was probably intimately concerned, in the one instance in which the cause of death was certainly ascertained. This was the case of a bird about three weeks old, which was found newly dead with a wound on the head. An extensive sub-dural blood clot in relation to the head wound was found on dissection.

W. SERLE, JNR.

WOOD-PIGEONS AND GREEN WOODPECKERS FEEDING ON CHERRIES.

THE cherry-grower suffers a heavy handicap in the loss of the fruit caused by many species of birds. But it was not until the past season that Wood-Pigeons (*Columba p. palumbus*), which have already too many bad traits to their credit, were seen to be taking cherries very freely, usually selecting the smaller varieties and swallowing the fruit whole—as the stones were oftentimes noticed in their fæces. A pair

of Stock-Doves (*Columba oenas*) that were nesting at that time in a hollow apple-tree in the same orchard, were never observed raiding.

Green Woodpeckers (*Picus v. virescens*) have been noticed for a year or more past suspiciously frequenting these cherry-trees, but it was not until the present season that I was able to watch them on several occasions feeding upon the fruit pulp.

J. S. ELLIOTT.

SHORE BIRDS AND MOLLUSCS.

THE following results of "stomach" examinations of certain waders may be of interest. I wish to acknowledge my thanks to Mr. J. R. le B. Tomlin, of the British Museum (Natural History), for identifying the *Mollusca*.

ROCK-PIBIT (*Anthus s. petrosus*).—Newton, North Uist, 12-2-35. One contained *Littorina saxatilis* Olivi.

RINGED PLOVER (*Charadrius h. hiaticula*).—Newton, North Uist, 12-2-35. One contained *Cochlicella acuta* Müller, and *Lymnaea peregra* Müller.

GOLDEN PLOVER (*Charadrius apricarius*).—Benbecula, November, 1933. Two contained *Cochlicella acuta* Müller. Newton, North Uist, January, 1935. Three contained *Cochlicella acuta* Müller. One contained *Helicella caperata* Montagu, and *Vitrina pellucida* Müller. One contained *Hydrobia ulvae* Pennant and *Retusa alba* Kanm.

TURNSTONE (*Arenaria i. interpres*).—Boreray, North Uist, 18-1-35. One contained *Lacuna vincla* Montagu, *Rissoa parva* da Costa, and *Lacuna pallidula* da Costa.

KNOT (*Calidris c. canutus*).—Newton, North Uist, 5-2-35. One contained *Littorina saxatilis* Olivi.

COMMON REDSHANK (*Tringa t. totanus*).—West Mersea, Essex, 27-12-34. One contained *Hydrobia ulvae* Pennant. West Mersea, Essex, 16-12-34. One contained *Littorina saxatilis* Olivi and *Cardium exiguum* Gmelin.

JAMES W. CAMPBELL.

AMERICAN PECTORAL SANDPIPER IN SOMERSET.

AT No. 1 reservoir, Barrow Gurney, North Somerset, there were, on September 28th, 1935, three waders among a large flock of Lapwing (*Vanellus vanellus*) and Black-headed Gulls (*Larus r. ridibundus*). One was a Reeve (*Philomachus pugnax*), the second was a Knot (*Tringa c. canutus*) and the third eventually turned out to be an American Pectoral Sandpiper (*Calidris melanotos*). The Knot had gone by the following day but the Reeve remained until September 30th,

while the Sandpiper was seen on every day up to and including October 3rd. It was first observed by S. H. G. Barnett, J. H. Savory and Mr. and Mrs. Tetley, on the 29th by H. H. Davis, on the 30th by the Rev. F. L. Blathwayt and the writer, on October 1st by W. B. Alexander, B. W. Tucker, W. M. M. Chapman and the writer, on October 2nd by W. R. Taylor, and on October 3rd by A. C. Leach. There could be no doubt that it was always the same bird as it was lame in the right leg and was continually hopping on the other. It was therefore rather difficult to judge its normal action when feeding.

Compared with the Reeve, with which it was closely associated, it was conspicuously smaller, but seemed larger than a Dunlin (*Calidris alpina*). Its bill was dark and about the same size as that of the latter bird and was slightly bent down. The legs at any distance seemed dark, but Mr. Taylor, on getting to within about eight yards' range, found that while the injured leg was wholly dark the upper part of the uninjured one was a pale yellow. The bird was feeding on muddy sand so the legs may have been partly covered in mud. The most striking features of the bird's plumage were the dark head distinct from the light neck, and a light stripe, much more conspicuous when seen at an angle, above the eye, the very dark back, rump and tail, the feathers of the back being fringed with brown or rufous and forming a very distinct longitudinal buff line which, in contrast with the dark colour, gave a very Snipe-like appearance to the bird when seen from above. The edge of the scapulars or wing-coverts also formed another buff line going across the wing when closed. The coverts were very mottled with large dark centres and buff fringes to the feathers, and under the wing was white. Mr. Taylor noted that the centre of the tail was black and pointed and the rest of it much lighter. Beneath, the chin was white, the breast was markedly streaked, and there was a very clear line of demarcation between this and the rest of the underparts, which were white. There was a dusky patch on the flank under the wing.

The flight, when the bird first went off, was strong and zigzag, but on the approach of a hawk, as Mr. Taylor saw, "it flew over the water this way and that, and up and down, exactly like a Tern". The primaries were dusky with lighter edges, and the back, rump, upper tail-coverts and tail were dark in flight. The call-note was a sharp double "*Trrit-trrit*".

The bird was very tame and on two occasions Mr. Blathwayt and Mr. Taylor each approached it in the open up to about six or eight yards, and on the former occasion it was difficult to put the bird up in order to hear its call. It was hoped to get a photograph of it but unfortunately more water had come into the reservoir thus flooding the mud on which it was feeding and the bird was not seen.

The above details showed that the bird was a Pectoral Sandpiper and a comparison of skins that it was the American (*C. melanotos*) and not the Siberian or Sharp-tailed Sandpiper (*C. acuminata*), as in the latter at this time of year there is no sharp line of demarcation on the underparts, the two blending much more gradually into each other.

This is the first record for Somerset. The weather, previous to September 28th, had been in part very stormy. There was a great gale from the west or south-west on the night of September 16th-17th, and a heavy thunderstorm in the Bristol district in the early morning of the 22nd, and it may be that it was one of these events that caused the appearance of the bird.

H. TETLEY.

SPOTTED REDSHANKS IN NORTHUMBERLAND

ON September 6th, 1935, I identified a Spotted Redshank (*Tringa erythropus*) on the tidal part of the river at Alnmouth, Northumberland. The same evening, Mr. Clive Tate, of Alnmouth, and I, thought we saw two of them in flight. On the 8th Tate definitely identified two birds, and on the 9th and 10th I saw them both. On the 11th they had gone.

It is interesting to record that except on the one occasion when Tate and I saw both birds flying, we never saw them together, their stances on the river being about 100 yards apart, and out of sight of each other round a bend. The length of river they fed along was very small, my note after one three-hour watch being that neither bird appeared to have covered more than about twenty yards of river bank. At suitable states of the tide, they were always to be found in almost exactly the same spot.

With regard to the appearance of the birds, the dark line from the bill through the eye was very distinct, and at a distance the long bill was a better guide to identification than the long legs, as the birds spent so much time wading. In general form and movements they appeared more like Greenshanks than Redshanks.

H. TULLY.

MORTALITY AMONG YOUNG COMMON TERNS IN LANCASHIRE.

IN *British Birds*, Vol. XXV., p. 135, Vol. XXVI., p. 168, Vol. XXVII., p. 138, and Vol. XXVIII., p. 211, I published the percentage of dead among the ringed Common Terns (*Sterna hirundo*) in a north Lancashire colony. The following are the figures for comparison :

1929	Very hot.	460 ringed.	Percentage of dead	4.13
1930	Very hot.	610 ,,	,, ,, ,,	4.87
1931	Cold and wet.	355 ,,	,, ,, ,,	2.81
1932	Hot.	549 ,,	,, ,, ,,	5.44
1933	Hot and dry.	500 ,,	,, ,, ,,	12.0
1934	Hot and dry.	879 ,,	,, ,, ,,	8.38
1935	Cold with cold nights.	911 ,,	,, ,, ,,	7.46

The large percentage in 1933 was due, as I pointed out, to visitors keeping the birds off their eggs, and in 1934 to a " tripper " shooting at least twelve, and wounding many more, of the parents.

Every season a high tide in July sweeps right over the nesting site and the young are suffocated and drowned in the seaweed.

This year, before the flood, the death rate was only 2.705 per cent.

H. W. ROBINSON.

ARCTIC AND OTHER TERNS IN MIDDLESEX.

THE remains of an Arctic Tern (*Sterna macrura*) were found by Mr. A. Holte Macpherson and myself at Staines Reservoir on September 1st, 1935. The bird had apparently died some weeks previously. It was a mature bird and an examination when found suggested that the bird was *macrura*. This was later confirmed by measurements of the bill and tarsus. This record is of interest as over half-a-century has elapsed since this species was recorded from Middlesex, two having been shot at the Brent Reservoir on 2nd September, 1881. The passage of Terns along the Thames Valley has been more noticeable than usual this year. Messrs. D. Gunn and A. Holte Macpherson saw a flock of about fifty Common Terns at Staines Reservoir on August 22nd, and on the next day the latter noticed a flock of twenty-five of the same species at Barn Elms Reservoir. On September 22nd Mr. A. Holte Macpherson and I saw at Staines Reservoir at least eleven Common Terns and ten Black Terns (*Chlidonias n. niger*).

Smaller parties of Common Terns were seen at Staines Reservoir on other dates. WILLIAM E. GLEGG.

Mr. F. R. Finch informs us that he had a very good view of an Arctic Tern on September 26th, at Staines, and that he and Mr. Holte Macpherson had an equally good view of the bird on the 28th, and also saw a second bird and heard its distinctive note.

SOOTY TERN IN NORFOLK.

ON September 11th, 1935, as my wife and I were returning from Blakeney Point to Blakeney, by motor-boat, a Tern, unknown to us, flew in front of the boat, only a few yards off, and then flew by the side of the boat.

What struck us, and the boatman, was the size of the bird. It was about as big as a Sandwich Tern.

We noticed the white forehead and black band through lores and eyes. The under-parts were white; the upper-parts, bill and wings were black.

We have since identified it, without doubt, at the British Museum, as an adult Sooty Tern (*Sterna fuscata*).

JOHN SLADEN WING.

SOOTY TERN SEEN IN KENT.

DURING the summer Mr. J. R. Tart, the chief watcher at Dungeness, wrote to tell me that he had watched a Sooty Tern (*Sterna fuscata*) on the Dungeness ternery on June 29th, 1935. He has since given me the following particulars:—The bird was first seen coming over from the north, across the ternery; the Common Terns mobbed it as it passed across. It went on to the sea and disappeared behind the shingle-bank. Half-an-hour later it reappeared from the west and flew along the coast eastwards towards Dungeness point, fishing as it moved along. Mr. Tart saw its very dark upper plumage and light underside; he noted that it was larger than the Common Terns, but with a shorter tail and a slower wing beat. He is very familiar with all the Terns that normally visit Britain. He saw a Sooty Tern at Dungeness once before, many years ago.

H. G. ALEXANDER.

SONG-THRUSH LAYING SEVEN EGGS.—Mr. F. H. Haines informs us that he found a nest of Song-Thrush (*Turdus e. mericetorum*) with seven eggs on an ivied wall at Winfrith, Dorset, on May 26th, 1906. For previous records reference may be made to p. 153 *antea*.

MOVEMENT OF RINGED TEAL FROM ABROAD.—*Correction*—The Teal M.1844, ringed at the Fanö decoy, recorded *antea*, p. 138, as recovered in Lincolnshire on February 26th, 1932, should have been February 26th, 1934.

SCANDINAVIAN LESSER BLACK-BACKED GULL IN LONDON.—Mr. H. W. Robinson informs us that on September 20th, 1935, he saw a Scandinavian Lesser Black-backed Gull (*Larus f. fuscus*) in St. James's Park.

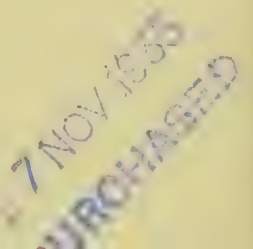
REVIEW.

Every Garden a Bird Sanctuary. By E. L. Turner. Bird-Lovers' Manuals. H. F. & G. Witherby Ltd. 5s.

THE growth of a generalized interest in our country's birds is undoubtedly one of the outstanding characteristics of the present century. For one person who sought to encourage their presence in his garden by means of artificial feeding, drinking and bathing facilities and nesting places, thirty years ago, there must to-day be many hundreds. Much of this has been done in an ill-directed and haphazard way and consequently with a varying amount of success. Much, no doubt, has been accomplished both from the point of view of conserving bird-life and of increasing our knowledge of birds and their ways, as well as awakening interest that must be lying dormant in most individuals. How much more, therefore, might be accomplished by efforts directed along the right lines. Much has been done in the past by isolated articles and letters, etc., dealing with isolated aspects of the subject, but it has been left to Miss Turner, a true enthusiast, to collect all the available information and advice within the covers of one small book. This should undoubtedly be in the hands of all true bird-lovers, and, if its directions could only be universally carried out, all those who hold the cause of the birds to be a precious heritage would, before very long, see a surprising change in our countryside.

One has only to read Chapter II.—“Man the arch enemy”—to realise how much Man has been, and is responsible for, in the decrease of our country's birds. Some, of course, is inevitable, if civilization and population is to advance, but how much more could, and might, have been avoided by a little care and forethought. Never before have we read so damning an indictment. The rest of the book is given up to the ways and means of combating these destructive activities, by instruction and advice in the creation and maintenance of bird sanctuaries, ranging from the smallest suburban garden to estates of hundreds of acres. The planting and thinning of trees, shrubs and plants, provision of water supply for drinking and bathing, dusting places, natural and artificial foods, natural and artificial nesting places and the suppression of vermin are all adequately dealt with, while final appendices give useful lists of foods applicable to the different species it is desired to attract, and of trees and shrubs that may usefully be planted, both from cover and food-bearing points of view.

The book is nicely printed and adequately illustrated with several of Miss Turner's artistic photographs and suitable diagrams of nest-boxes and feeding appliances. Slips seem to be few, but the statement on p. 59 that in Italy “song-birds are killed and eaten either for food or plumage” makes curious reading, while surely the old Boer saying on p. 125 should read “Lord! What things a man sees when he goes out without a gun.”—N.F.T.



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CONTENTS OF NUMBER 7, VOL. XXIX., DECEMBER 1, 1935.

	PAGE
Chart of Bird Song. By H. G. Alexander	190
Wakes's Wagtail as a British Breeding Bird. By E. C. Arnold ...	199
Some Remarks on the Patagial Fan of the three British Breeding Petrels. By Gregory M. Mathews	201
Contribution to the Study of Sea-bird Movements. By P. H. Trahair Hartley, B.Sc.	203
Notes	
The Status of the Raven and other Birds in Midlothian (W. Serle, Jnr.)	211
Large Movement of Jays in Hampshire (H. F. Witherby) ...	212
Feeding Habit of Jays (G. Marples)	214
Immigration of Crossbills... ..	214
Two Blue Tits building in Beehive (E. A. Wallis)	215
Great Spotted Woodpeckers in Shetland (W. E. Glegg) ...	215
Spoonbill in Isle-of-Man (Col. H. W. Madoc)	216
Bewick's Swan in Middlesex (A. H. Macpherson)	216
Exhausted Leach's Petrel revived with Cod-Liver Oil (E. Cohen)	216
Ptarmigan-Doves alighting on Water (Miss M. Barclay) ...	217
American Pectoral Sandpiper in Dorset (K. B. Rooke) ...	217
American Pectoral Sandpiper in Ireland (G. R. Humphreys) ...	218
Yellowshank observed in Isle-of-Man (Col. H. W. Madoc) ...	218
Black-headed Gulls feeding on Beetles (W. E. Glegg)	219
Land-Rail Laying Twice in Twenty-four Hours (Rev. P. G. Kennedy)	219
t Note :—	
International Exhibition of Nature Photography	220

*PUBLICATION OF THE BRITISH TRUST FOR
ORNITHOLOGY.*

A CHART OF BIRD SONG.

BY

H. G. ALEXANDER

At the request of my brother, W. B. Alexander, of the British Trust for Ornithology, I have prepared the accompanying chart of the song-periods of birds, principally based on my own observations during thirty years in Southern and Midland England. My experience of certain fenland, moorland, mountain, maritime and other very local species is by no means complete. In order, therefore, to make the chart as complete as possible, I have incorporated information kindly placed at my disposal by Miss E. L. Turner, Messrs. J. Armitage, F. Taylor, R. M. Lockley, L. S. V. Venables, and others.

A number of difficulties present themselves when one tries to compile a table of this sort. There is, first of all, the fundamental question: What is bird song? I know of no definition that is wholly satisfactory. In this table I have included all the Passerine species that inhabit England and Wales, whether as residents or regular visitors, provided they have some "song" or call-note that is seasonal in nature; that is to say, a song or call that is uttered either much more frequently and intensely, or solely, at particular seasons of the year, in nearly every case spring or early summer. There are very few Passerine species that have no such "song". The trill of the Long-tailed Tit, though very much like some other Tit trills that are seasonal, seems to be evoked by sudden excitement—especially by the appearance of a bird of prey—at any season of the year. The Crows have no regular song, though Magpies and Jays occasionally indulge in choral chatterings early in the spring, and even the conversation of Jackdaws and Rooks seems to take on a heightened significance at that season. Other borderline cases are illustrated by the Red-backed Shrike, Bullfinch, Tree-Sparrow and Wagtails, whose songs are usually feeble affairs, infrequent and spasmodic.

Outside the Passerine order the difficulty of deciding what to include is still greater. Cuckoos, Wrynecks, Brown Owls, Wood-Pigeons and some of the Waders have seasonal cries that seem to be evoked by the same circumstances—inner well-being and a favourable environment—that evoke the best-recognised songs of Warblers, Thrushes or Finches. But

Some observers may question the propriety of including the swift's scream, as I have done. On the other hand, certain gulls and Terns, Hawks, Partridges and some other species not included in this table, seem to have special cries only to be heard at certain seasons. The Woodpeckers are difficult to deal with. In the case of the Green Woodpecker, the full high-pitched " laugh " is its spring cry. The Lesser Spotted Woodpecker has a rather similar cry, uttered irregularly, but chiefly in spring and late summer. But its more characteristic spring sound is its drumming. And with the Great Spotted Woodpecker the drumming seems to be the only regular sound characteristic of the spring. For these two species, accordingly, as also for the Snipe (which also utters a " yodeling " call on the ground in spring), it is the periods of instrumental, not of vocal, " song " that I have indicated.

Again, there is, of course, great difference as between district and district, season and season, and one bird and another. In a cold, bleak, bitter December or January there may be hardly any bird song, but a sudden mild spell may set eight or ten species singing quite well. Garden-birds, such as the Tits and Hedge-Sparrow, sing far more frequently during the autumn in the south-eastern counties than in the Midlands, so far as my experience goes. Larks, too, have a far more pronounced autumn song-period in some districts than in others. Certain species, the Blackbird, for instance, goes on much later in the summer in some districts than in others. Lord Grey, in his *Charm of Birds*, says that he has never heard a Blackbird sing in July. On the other hand, Mr. R. M. Lockley tells me that on the island of Skokholm they sing till the very end of July. Mr. J. P. Burkitt has informed me that several common species leave off singing several weeks earlier in northern Ireland than in southern England. Possibly others go on later. So, throughout the table, I have assumed optimum conditions.

In this table, occasional song is indicated by dots ; and I would emphasise the word " occasional ". It may be that once in thirty years I have lived near an individual Hawfinch, Mistle-Thrush, or Coal-Tit, or Tree-Creeper, that sang much more than is normal for its kind. Such cases are covered by dots ; so, too, are cases where a good many of the species often sing a slight sub-song in the early morning or on sunny days, as with the Lesser Whitethroat in September. Regular but fairly frequent song is represented by a broken line. Regular song (again assuming optimum conditions) is

represented by an unbroken line. Here again, though, the unbroken line for autumn song may indicate that the species sings daily, but only a little, in the early morning. Its maximum spring-song, also represented by a single straight line, may be of ten times the volume. Such differences are practically impossible to indicate. Some species leave off singing while feeding their young. But I have not broken the line to indicate this in any species, since there are often unmated birds, and those that are breeding do not all hatch their young simultaneously.

The numbers in front of each species represent a rough attempt at classification according to merit. Class 1 includes only the finest songs—songs of power and variety. 2 indicates songs of moderate quality, or seasonal calls (like the Cuckoo's), that are loud and tuneful. 3 indicates songs of poor quality, or slight or monotonous or unmusical calls. 4 indicates very feeble or occasional songs or cries. Non-vocal sounds are not classified.

In *A Practical Handbook of British Birds* the song of nearly all the well-known Passerine species is described. This chart applies to the songs there described; but in the case of those species whose songs are not described, I attempt here to indicate the sound referred to.

The Starling has a chattering, varied song, never loud, but often very persistent. The Hawfinch's song consists of a few metallic, rather unmusical notes. The Siskin has a rather sweet song, quite different from its shrill call-note. The Bullfinch's song is a low piping warble. The Brambling never sings in England, as far as I know. Each of the two Sparrows sometimes develops its chirping into a fairly regular song of eight or ten notes. As for the Tits, the "teacher-teacher" of the Great Tit is clearly its song, and the Coal-Tit's is similar, but sweeter in tone, and less metallic. The Blue Tit's song is a loud trill. The Marsh-Tit's song is a single liquid note rapidly repeated about a dozen times. The Willow-Tit has a softer liquid run of notes, interspersed with a sweet, almost canary-like warble, but all in a low-tone. Occasionally the Marsh-Tit utters a somewhat similar low-toned song. The Firecrest's song is like the Goldcrest's, but rather stronger and lower-toned. I have never heard a Fieldfare sing in England. Redwings, on the other hand, not only warble together in the tree-tops, but one and another sometimes breaks out into a short, rich bar of song. It is the period of this, not of the warbling chatter, that I have indicated.

THE DISTRIBUTION OF BIRDS IN SOUTHERN BRITAIN.

* Information not complete. Numbers represent an attempt to classify song according to merit. Unbroken lines regular song. Dashes irregular but frequent song. Dots occasional song or sub-song. † non-vocal sounds.

[illegible]

SYKES'S WAGTAIL AS A BRITISH BREEDING BIRD.

BY
E. C. ARNOLD.

SYKES'S WAGTAIL (*Motacilla flava beema*) has hitherto been on the British list as a rare straggler on migration. It is the purpose of this note to show that it sometimes breeds in the south-east corner of England. I have suggested this ever since May 5th, 1923, when an adult male (now in the collection of Eastbourne College) was obtained in this area while in company with a female.

In recent years Mr. R. H. Higgins and I have been trying to convert suspicion into certainty. On July 14th, 1932, we discovered a male, which, though it appeared at the time to be alone, was seen by me next day in the company of what I took to be a well-grown young bird. In 1934, throughout the month of May, we saw a male and female together several times and decided that they were nesting. We kept away for a fortnight and then went expecting to find a nest with young in it, which we could have invited people down to see. To our great disgust the birds had disappeared, and we found a weasel hunting the ground. This year (1935), on May 13th, we at last watched a pair of birds to their nest and when the cock bird was subsequently picked up dead close to it, I submitted it for identification to Mr. H. F. Witherby, Mr. H. Whistler and Dr. C. B. Ticehurst. All these authorities agree that the bird was undoubtedly typical of *M. f. beema*. Meantime, to my amazement, on June 3rd I had found another pair apparently nesting only a few miles away.

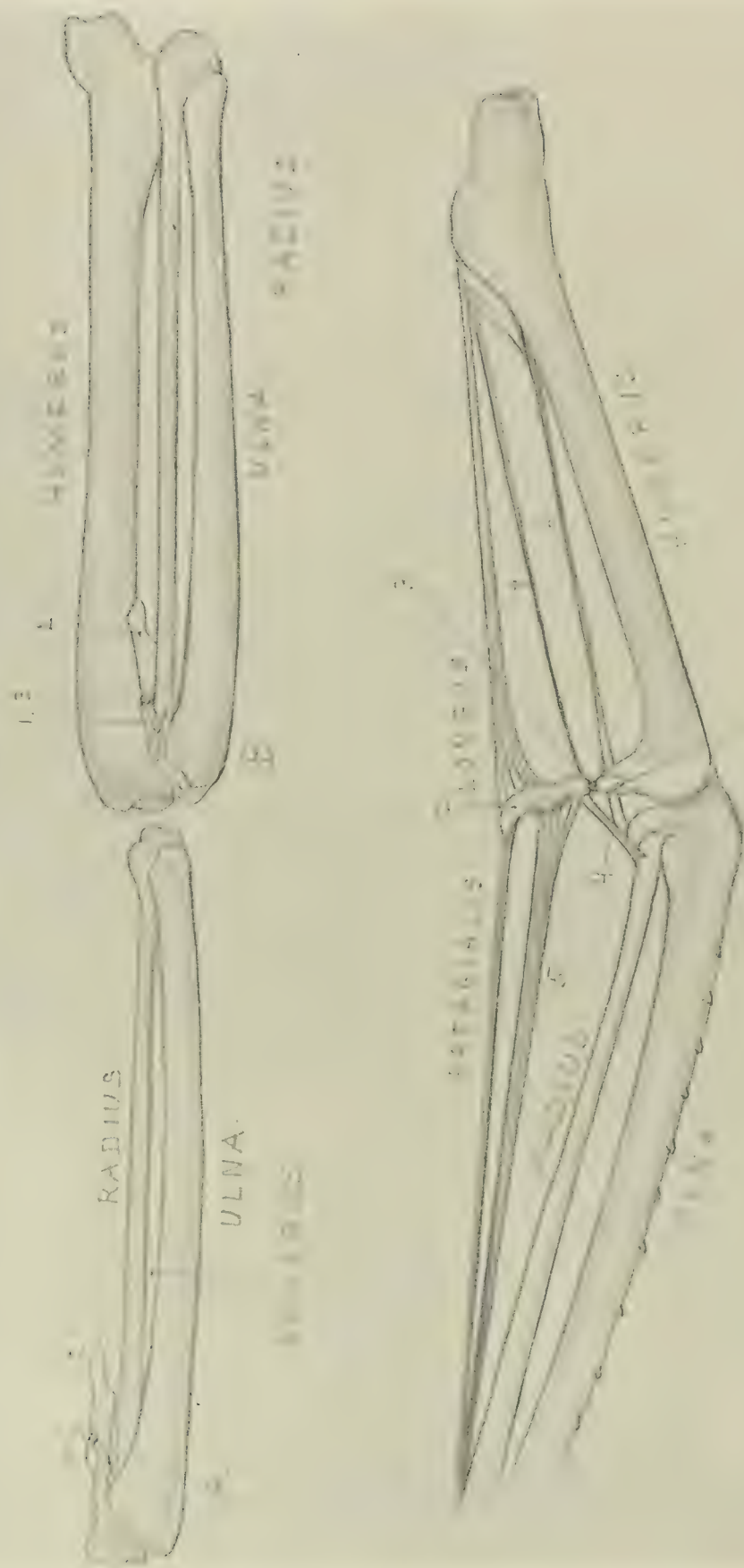
It seems, then, quite probable that birds of this form have nested or attempted to nest five times in this area, and the question now arises, whether some of the birds previously reported as nesting examples of the Blue-headed (*Motacilla f. flava*) may not really have been *M. f. beema*. In support of this I may state that Dr. C. B. Ticehurst has now labelled as *M. f. beema* a male bird killed in Kent on June 19th, 1908, when accompanying a brood. This bird was wrongly stated to be a female and was reported at the time as a very worn aberrant specimen of *M. flava* (*Bull B.O.C.*, Vol. XXIII., p. 53). Furthermore, his brother, Dr. N. F. Ticehurst, tells me that when he photographed the nest found on June 4th, 1905, the bird was attributed to *M. f. flava* (see *Brit. B.*, Vol. I., p. 142), but the late M. J. Nicoll, who was present, suggested at the time that it had the appearance of *M. f. beema*. I think it probable that before the publication of the *Practical Handbook*

most people, if they saw a Yellow Wagtail with anything in the nature of a grey or blue head, set it down as *flava* regardless of the exact shade or the colour of the cheeks. Incidentally the Booth Museum at Brighton has a bird labelled as a "Grey-headed", which seems to me to be also *M. f. beema*. This bird was shot by C. C. Steyn on the Adur (Shoreham) on May 5th, 1887.

[Mr. Arnold's discovery that a small group of Blue-headed Wagtails of the type of Sykes's Wagtail (*Motacilla flava beema*) has bred over a period of years in south-east England, is of the greatest interest and importance. In the *Practical Handbook* (Vol. I., p. 196) two occurrences of *M. f. beema* are admitted, one on April 20th, 1898, near Rottingdean, Sussex, and the other at Fair Isle on May 18th, 1910. The first of these was probably of the type described by Mr. Arnold, and it would seem likely that the Fair Isle occurrence may have been the same. The male taken near Winchelsea with a nest on May 31st, 1901 (R. Butterfield, *Zool.*, 1901, p. 389) and referred to in *British Birds* (I., p. 136) and in the *Practical Handbook* as a worn example of *M. f. flava* was probably also of this type. It is unfortunate that the females of the various forms of *flava* are so much alike that the observations must rest mainly on the appearance of the males. In seeking an explanation of this surprising discovery it would seem entirely unlikely that these birds originated from the region inhabited by the geographical form separated under this name, the breeding area of which is in western Siberia, and its wintering range in India, with casual occurrences in south-east Europe and north Africa. This view is strengthened by the fact recently made clear by Dr. A. Kleiner* that the breeding Blue-headed Wagtails in Hungary may be divided into three types, the most prevalent being like *M. flava flava*, a second with dark ear-coverts and a third with pale ear-coverts interspersed with white and with a pale crown, that is to say a bird like *M. f. beema*. We hope that further investigations will throw light on what must now be regarded as a puzzle, but it may be suggested that an explanation may possibly lie in these pale-headed birds in south-east England and also in Hungary having originated independently as mutations, in which case they cannot be regarded as a geographical race at present. We notice that Dr. Kleiner advocates the deletion of *M. f. beema* from the Hungarian list.—EDS.]

**Die Rassen der Schafstelzen in Ungarn*, Kgl. Ung. Ornithologischen Institutes Budapest, 1935. Dr. Kleiner's paper is in Hungarian, and we quote from a short summary given at the end in German.

WINGS OF MANX SHEARWATER.



- A. Side of wing tilted to show how the spreader and ossicle do not lie in the same plane as the humerus and radius.
1. Ossicle. 2. Spreader. 3. Cartilage joining ossicle and spreader. 4. Process of humerus.
B. Side of wing. The ossicle lies on the humeral process, but not on the end face of the process. 1. Ossicle
2. Spreader. 3. Cartilage.
C. Left wing extended. 1. Ossicle. 2. Spreader. 3. Cartilage. 4. Tendon spreader to radius. 5. Strongest tendon spreader to radius. 6. Tendon humeral head to radius and throws a slip to spreader. 7. Tendon spreader to humerus.



LEFT WING OF FULMAR CHICK



RIGHT WING OF STORM-PETREL

Left wing of Fulmar Chick.

1. Process of humerus. 2. Tendon of brevis. Showing the brevis tendon arrangement. Process of humerus present but no ossicle or spreader bone.

Right wing of Storm-Petrel.

1. Extensor muscle. 2. Patagium. 3. Humerus. 4. Radius. 5. Ulna. 6. Process of humerus.

SOME REMARKS ON THE PATAGIAL FAN OF THE THREE BRITISH BREEDING PETRELS.

BY

GREGORY M. MATHEWS.

(Plates 5 and 6).

IN the Report of the "Voyage of H.M.S. Challenger," part XI., 1882, Forbes mentioned wing ossicles in certain of the Tubinares and gave drawings of the patagial fan of some half a dozen species. He mentioned that Meckel first, and then Reinhardt, noticed the bone.

I have been investigating the wings of the British-breeding species of Petrels, after a conversation with Major Allan Brooks in April, 1935.

In the Manx Shearwater (*Puffinus p. puffinus*) there is a decided bone, the moklosteon, caused no doubt by the ossification of a tendon or its slip, which seems to be of great advantage to birds with the gliding flight of Puffinoid-Petrels and Albatroses.

On the humeral process there is an ossicle seated on the upper surface; this ossicle is connected, by a plank of almost solid fibrous tissue, to the moklosteon, thus forming a bar.

When the wing is extended the *patagialis longus* reaches from the head of the humerus to the wrist, and beyond the wrist are the flight feathers. A strut coming from the elbow and extending to the anterior border of the patagial fan, would strengthen this part of the flying apparatus just where strength would be of advantage. When the wing is folded up the moklosteon fits above the wing bones. It seems, then, that the moklosteon is much more important than a wing ossicle. This is confirmed by examination of the wing of other gliding-birds.

In the wing of the Storm-Petrel (*Hydrobates pelagicus*) we find the patagial fan of quite a different construction, no spreader bone is needed as the bird flaps its wings and seldom glides: a tendon *humero-proc carpi* from the humeral process to the wrist seems to take the place of the moklosteon.

In the Fulmar (*Fulmarus glacialis*) there is no evidence of either ossicle or spreader. The humeral process is well developed in the chick, and the tendon arises from it and joins the muscles without any ossifying.

In no species of the Fulmarine Petrels do we find any indication of the spreader.

Here, then, we have the three breeding British Petrels each with a different patagial fan.

Can it be that the moklosteon is of taxonomic value? It certainly obtains in gliding birds.

I am obliged to Mr. R. Kemp for doing all the anatomical work from dried skins, kindly sent by Mr. R. M. Lockley.

In the Pterodromine (or Bulweriine) Petrels " the twin tendons of origin of the superficial belly of *extensor metacarpi radialis longior* " join the humeral process, without the ossicle, to the moklosteon.

In the Fulmarine Petrels these twin tendons join the *tensor patagii brevis* to the humeral process without either ossicle or moklosteon.

In the Puffinine Petrels (Shearwaters), and in the Diomedeidæ the moklosteon is joined to the ossicle seated on the humeral process, by a plank of ossified tendon, called the sanosteon.

The *os obex* is made up of moklosteon, sanosteon and ossicle.

The Diving Petrels, Prions and the Storm-Petrels resemble the Fulmarine Petrels, in having no wing ossicles in the patagial fan. That is to say the families Pelecanoideidæ and Thalassidromidæ, resemble the sub-families Pachyptilinæ and Fulmarinæ in having no moklosteon, while the family Diomedeidæ and the sub-families Bulweriinæ and Procel-lariinæ have this bone.

A CONTRIBUTION TO THE STUDY OF SEA-BIRD MOVEMENTS.

BY

P. H. TRAHAIR HARTLEY, B.SC.

THE movements of sea-birds off the west coast of Cornwall are not confined to the period of spring migration. While staying in west Cornwall during the Easter and long vacations of 1932-35, I have been able to make some observations, and have found that in late July, August and September movements of Shearwaters, Gannets, and auks take place in the same direction as in spring, though on a smaller scale.

1. *Composition of Movements.*

The birds taking part in the movements with regularity are :—

Manx Shearwater (*Puffinus p. puffinus*).

Gannet (*Sula bassana*).

Guillemot (*Uria aalge*).

Razorbill (*Alca torda*).

(See Table I.).

A few Kittiwakes (*Rissa t. tridactyla*) were observed in six (8 per cent.) of the movements, and I have records of Shags (*Phalacrocorax a. aristotelis*) and Black-headed Gull (*Larus r. ridibundus*) moving with the stream of birds on one occasion each. Colonel Ryves has recorded small numbers of Herring-Gulls (*Larus a. argentatus*) on March 22nd, 1932 (Ryves, 1932) and Dr. Thorpe Puffins (*Fratercula a. gracca*) on April 11th, 1935 (Thorpe, 1935).

TABLE I.

Total number of movements observed		
(1932-35)	71	—
Number in which Shearwaters passed...	49	(69%)
Number in which Shearwaters only		
passed	8	(11%)
Number in which Gannets passed ...	49	(69%)
Number in which Gannets only passed	13	(18%)
Number in which auks passed	39	(59%)
Number in which auks only passed ...	6	(8%)

Upon days of large movement Manx Shearwaters and auks passed in thousands, but Gannets, even upon days when they formed the most striking part of the movement, could only be counted in hundreds. It was felt that a system must be devised whereby the species could be considered upon a basis which allowed for the great differences in the numbers in which they were represented. In a movement in which 20,000 Shearwaters and 10,000 auks passed in a morning

(these figures are no exaggeration) 1,000 Gannets would actually form a striking part of the movement, but on a numerical basis would be less than 3 per cent. of the total passage. If the figures were 1,000 Shearwaters and 500 Gannets, although the species were numerically on a basis of 67 per cent.: 33 per cent., the Gannets would be moving in greater proportional strength than the Shearwaters, since the number of Gannets would be about half the maximum for the species, while the Shearwater number would be only one-twentieth of the maximal Shearwater movements. In an endeavour to make allowance for these differences in "population" (if that term may be applied to these nomadic birds), a system was adopted resting only indirectly upon a numerical basis.

The records made each day contained an estimate as to the importance of the movement of each species—the estimate being based solely upon the numbers usual for that species. 200-300 Shearwaters in a morning would be stated as "a small number—200-300", but the same number of Gannets as "a large movement—200 or more". These estimates were then scheduled, and given index numbers, from 10 (immense numbers, a huge movement, etc.) to 1 (a dozen in the case of Shearwaters, 1 or 2 in that of Gannets). These quite arbitrary—but, it is hoped, adequate—indices have been used in computing variations in the movements. It is realized that this system rests upon a purely empirical basis, and can lay no claims to great accuracy.

I am fortunate in being able to illustrate the difference between an actual count, and a series of indices. In Table II., Dr. Thorpe's figures for a movement on April 11th, 1935, are shown, contrasted with my series of indices for that day.

TABLE II.

			<i>Manx</i>		
			<i>Shearwaters.</i>	<i>Gannets.</i>	<i>Auks.</i>
Numbers...	...	...	80%	5%	20%
Indices ...	...	...	10	5	7
Index Percentages	...	...	45%	23%	32%

These figures illustrate the aim of the index system: to arrive at an estimate of the relative, rather than the numerical, importance of the species taking part in the movements each day.

Throughout this paper, unless otherwise stated, figures refer to indices, and not to counts.

It was found that in both spring and summer, Shearwaters were the most important species in the movements. There

in an approximately S.W. direction, past Zennor (Mr. G. H. Harvey, *in litt.*) and Gurnards Head (Ryves, 1932; Thorpe, 1935), to Cape Cornwall, and then away S.W. to the west of the Longships Lighthouse. The second line is W.S.W. from Mounts Bay, past Lamorna and Treryn Dinas, to Porthgwarra, and so towards the Scillies. On August 25th, 1933, when crossing to the Scillies, we passed through a small number of Shearwaters moving south, over an area stretching some miles west of the Longships.

Of northward movement along the Cape Cornwall—Zennor line, I have six records in four years. (Table IV.).

TABLE IV.

<i>Date.</i>	<i>Species.</i>	<i>Place of Observation.</i>
1.viii.32	5 Gannets.	Cape Cornwall.
10.iv.33	4 adult Gannets.	do.
13.iv.33	{ 2 adult Gannets. }	do.
	{ 1 Razorbill. }	
14.iv.33	6 adult Gannets.	do.
30.vii.33	About a dozen Gannets.	do.
25.viii.33	6 Shearwaters.	c. 6 miles east of the Scillies, 6 p.m. B.S.T.

(Counts in all cases).

3. *Duration of Movements.*

Movements were usually on a larger scale in the morning than afternoon. This was especially marked in the case of Shearwaters. I have no record of a bird of this species flying south later than 5 p.m. (29.iii.32). Upon several days when there was a considerable movement of Gannets and Shearwaters, my records state that in the early morning (7—10 a.m.) Shearwaters formed by far the most important part of the movement, but that after noon the Shearwater passage declined greatly, though Gannets continued to go by in numbers.

My only record of a large movement limited to the afternoon is on September 24th, 1934, when there was a large passage of Gannets (index 8) and auks (index 7) between 3—4.30 p.m., B.S.T. There was no Shearwater movement at all on this day, but a few Gannets were passing south at 9 a.m.

The shortest movement of which I have a record was on September 21st, 1933, when a movement of many Gannets and large numbers of auks began abruptly at 7.45 a.m., B.S.T., and ended almost as suddenly at 8.25 a.m., B.S.T.

4. *Influence of Weather Conditions.*

It was found that sea-bird movements were most noticeable upon days when there was a strong wind or heavy sea. To

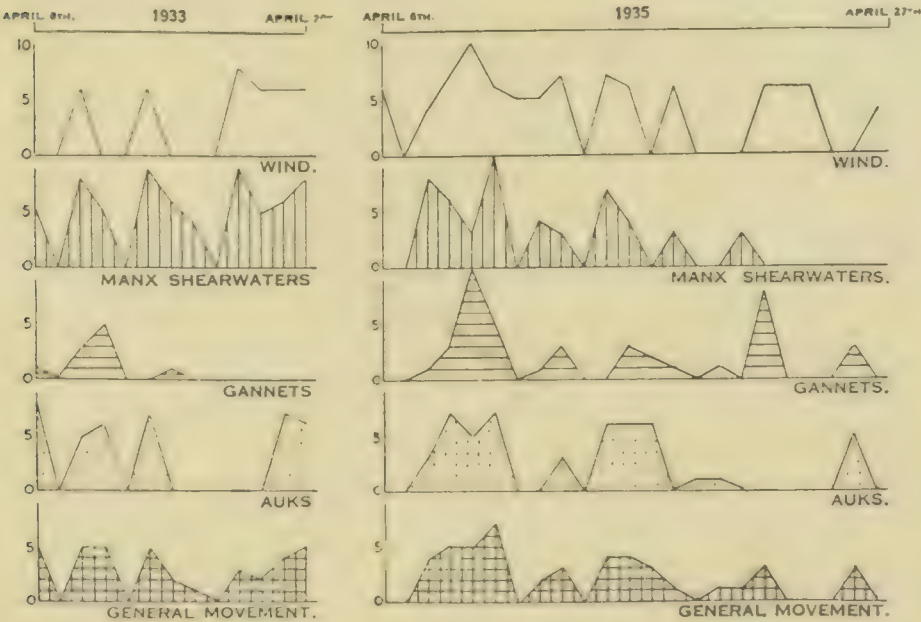


FIGURE 2. Spring 1933. April 8th—April 20th.
FIGURE 3. Spring 1935. April 6th.—April 27th.

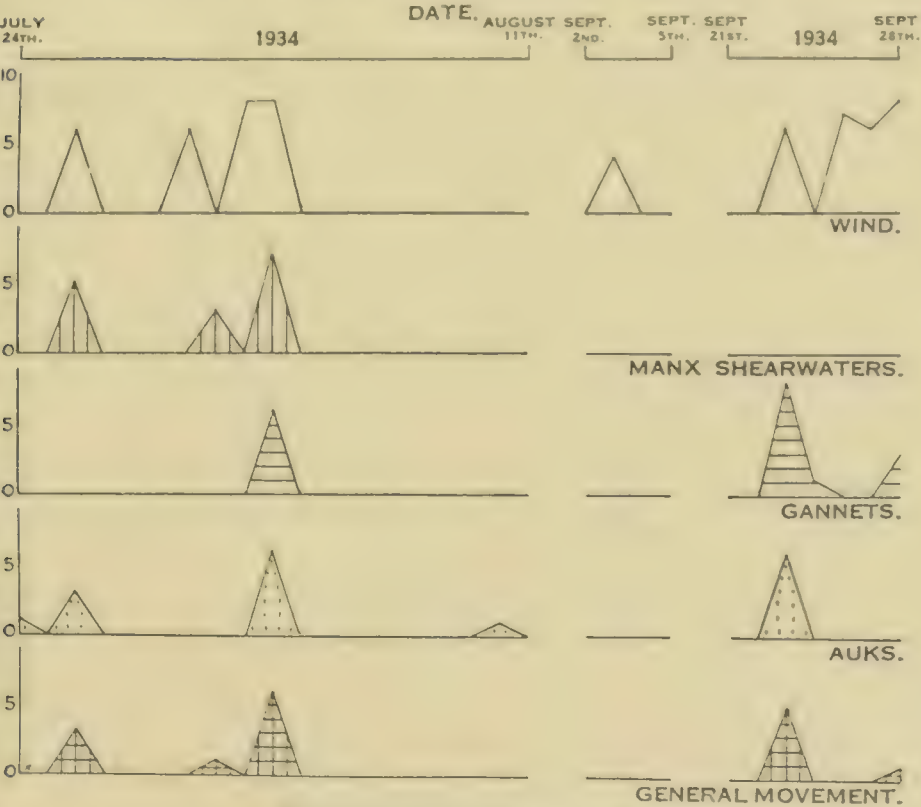


FIGURE 4. Summer 1934.

illustrate this, the wind records in my diaries for the four years have been plotted on graphs. Using indices—(Gale 10, Half-gale 8, Wind 6, Breeze 4, etc.) and the indices of Manx Shearwaters, Gannets and auks plotted on previous page, separately, and as a total—the General Movement. (The figure for the general movement index is obtained by adding up the specific indices, and dividing by three).

Three of these graphs are reproduced—Figures 2, 3 and 4. The correlation between a high wind and a big sea-bird movement was found to be a striking one, more particularly in spring. In the later part of the summer—autumn period—the sea-bird movements are smaller than in March and April, and correlation with high winds is less apparent. If there be a sea-bird movement, it will be on a windy day ; but there are often periods of rough weather when no sea-bird passage takes place.

The conditions in spring, 1934, were unusual. The graph for that period, which is not here reproduced, suggests the possibility that an *increase* in wind is a factor causing a large (visible) movement.

5. *Discussion.*

There seem to be two possible explanations of the sea-bird movements round west Cornwall.

1. That they are true migrations between breeding stations and winter quarters ; this has been suggested by Dr. Thorpe (Thorpe, 1935).

2. That they are part of daily feeding movements of birds breeding on the British coasts.

The spring movements of Shearwaters, Guillemots and Razorbills might be simply a spring migration towards the Biscayan coasts ; the birds passing W.S.W. past Treryn Dinas must be considered as turning southward with the Cape Cornwall stream where the two converge S.W. of the Longships. It is known that Shearwaters from Skokholm and Skomer go southward in winter (Lockley, 1935) ; if, therefore, the southward movements past Cornwall in spring be part of a long range migration, a very curious transposition of winter and breeding quarters must be postulated. An alternative view is that the movements might be a breeding migration towards the Scillies, and that the stream in a S.W. direction past Cape Cornwall will eventually swing more to the west. This view leaves the identity of the birds moving in the late summer still in question.

The nearest breeding colony of Gannets is Grassholm; there is no station farther south on the east side of the Atlantic. The southward passage of Gannets in spring cannot, therefore, be explained as a breeding migration. The movements must, I think, be regarded as a whole; the four species of birds move together in the same direction, upon the same course, and in largest numbers under the same weather conditions. An hypothesis is needed which will apply to all four species.

The fact that the movements in spring and summer are in the same direction, and the presence of Gannets in the spring, seem to me to be arguments against the breeding migration hypothesis.

A second possible explanation of these flights of sea-birds is that they form part of a series of regular—and probably complex—movements made daily by birds breeding upon the British coasts. These movements would, presumably, be “circular”, to and from the breeding stations of the birds involved.

It must be admitted that the evidence for the existence of regular movements is small. Messrs. Salmon and Ingram (1934) state that to the Pembrokeshire Islands “the vast majority (of Manx Shearwaters) come up from the S.E., in which direction they have 40-odd miles of open sea”; Mr. R. M. Lockley says that relatively few Shearwaters come to these same islands from the westward (Lockley, 1931). To Annet, in the Scillies, Mr. F. W. Frohawk (*in litt.*) tells me that the main inward flight in the evening is from the south-east. Messrs. Salmon and Ingram also mention that between the Pembroke Islands and the Scillies, Shearwaters “are met with continually in parties of varying size”. Such of these birds as nest in Skokholm and Skomer would have to return to their breeding stations by a circling route to appear from the south-east.

I am of the opinion that the passages off the Cornish coast are simply a part of a system of daily movements. Why they should be most noticeable in stormy weather I do not understand; Mr. Lockley has observed that the Shearwaters assembling in the evening come close to the shore at Skokholm on rough days. I think it very probable that the Shearwaters and auks come chiefly from the Scillies. Mr. Frohawk tells me that Shearwaters become very scarce in Scilly in September, and in this month there is a great decline in their numbers off Cape Cornwall.

For the Gannets it is less easy to account, as their nearest station is 112 miles away ; but I believe that their movements are daily events, which, as in the case of Shearwaters and auks, are concentrated upon the coast in rough weather.

It has not yet been possible to make observations during late autumn and winter, but I hope to be able to do so shortly. The difficulty of investigation of these sea-bird movements is very great. An ornithological Wolfenden, owning a powerful and seaworthy yacht, could add a great deal to our knowledge.

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NOTES

THE STATUS OF THE RAVEN AND OTHER BIRDS IN MIDLOTHIAN.

IN the recently-published *Birds of Midlothian*, it is said of the Raven (*Corvus c. corax*)—"it nested in the Moorfoots as late as 1917 but it is doubtful whether the Raven can still be included in the faunal list of the county".

On February 23rd, 1935, I saw a Raven in the Moorfoot Hills, and on March 2nd, on searching a valley, I found an empty nest and saw both birds in the vicinity. On March 12th, my father being with me, we noted both birds at the nest, which now contained one egg. On March 16th the nest contained two eggs, and on the 23rd the bird was again flushed from the same two eggs. Incidentally two eggs made up the set in this case, which is exceptional. On April 22nd the nest was empty and the lining torn up. I saw the game-keeper, who said he knew of the nest and had seen the young on April 19th. Recently he stated that later in April he was surprised to see a pair of Buzzards—which are still in the vicinity—in the valley. In his opinion the appearance of the Buzzards and the disappearance of the young Ravens was no coincidence. He stated further that since he came to the district in 1922 the Raven has nested three times in the valley and reared young successfully on each occasion—in 1925, 1927 and 1931.

Apparently, then, the Raven may still be numbered among the birds resident in the county.

Several other statements regarding the distribution of certain species calls for modification, particularly when the breeding status of the bird is in question.

The author says of the Bullfinch (*Pyrrhula p. nesa*)—"rare in Midlothian and seldom comes under observation", and he brings forward no positive evidence of breeding. I have frequently observed the Bullfinch and have found it breeding on two occasions; once at Mortonhall on May 27th, 1932, when the hen was flushed from a c'5, and once at Penicuik on September 7th, 1932, when it was seen feeding young.

June, 1877, is the most recent record of the Blackcap (*Sylvia a. atricapilla*) quoted. I found the nest (both birds present) with young and two addled eggs in June, 1928, near Dalkeith.

The most recent breeding record of the Barn Owls (*Tyto a. alba*) is given as 1898. The bird has been resident at Dud-dingston for at least seven years, and this July I flushed the bird from its nesting hole which contained one nestling.

The Roseate Tern (*Sterna dougallii*) is not mentioned in the book. On June 15th, 1934, Messrs. Hamilton and Bryson being with me, we identified this bird with certainty amongst a large breeding colony of Common and Sandwich Terns on an island in the Firth of Forth off the Midlothian shore. Though we were not able to watch the bird to the nest, its presence at that date was presumptive evidence of breeding.

The only mention of the Kittiwake (*Rissa tridactyla*) is in the list of birds observed at the mouth of the River Esk. The Kittiwake breeds in Midlothian. I first found them breeding on June 13th, 1931, when there were three pairs of birds at their nests, which were built on a narrow ledge of the breakwater at Granton Harbour, Edinburgh.

The Kittiwake may quite possibly have bred there previous to 1931.

These notes are personal records only, and I feel sure that ornithologists who know Midlothian can add to them.

W. SERLE, JNR.

LARGE MOVEMENT OF JAYS IN HAMPSHIRE.

MAJOR M. PORTAL, who gave details in our last issue (*antea*, pp. 174-5) of a large movement of Jays in Hampshire, has sent me additional notes of flocks of 27 on October 4th and 23 on October 5th at Alton, flying over towards S.W. Flocks have also been observed near Salisbury, and "Observer", in *The Field* (November 9th, 1935, p. 1081), counted 145 Jays crossing high up from one covert to another on October 5th, in south Wiltshire, where a large influx had been observed a few days before. Dr. T. Longstaff informs me that a large influx, beginning in the middle of October, was also noted near Ringwood. These records, with those already published, appear to cover the area over which large numbers of Jays have been noted and the limits centred round Southampton and Portsmouth seem to be approximately Petersfield, Alton, Andover, Salisbury, south Wiltshire and Ringwood. Mr. G. Brown observed twenty or more in woods usually holding one or two, near Newbury, on November 9th, and these may have been derived from the influx. Other correspondents have noted Jays in rather unusual (but not large) numbers,

in places where they are usually scarce, but these movements seem to have been quite local and some were, no doubt, small concentrations due to a very "patchy" distribution of the acorn crop.

So far as ascertained there have been no unusual numbers of Jays in Norfolk or Kent.

Sporadic incursions of Jays have been noted at various times in a number of counties. A large incursion similar to the present one was recorded in the New Forest area in October, 1902, and this appears to have extended to Dorset and possibly Sussex. In the east-coast counties large influxes have been noted in various years and some of these have been definitely ascribed to migrants from the Continent, as in Kent and Suffolk in September and October, 1910, and Norfolk in 1918. A very large movement occurred over Heligoland on October 6th, 7th and 8th, 1882, and flocks were noted from Yorkshire to Kent, but for the most part these influxes of Jays appear to have been confined to comparatively small areas, and it seems likely were due to a single flock stringing out or a few flocks following each other and then spreading out to a limited extent.

The origin of the present influx into the middle of our south coast can only be surmised. The direction of the flight of flocks observed may indicate merely movements from wood to wood after arrival, nor does the earliest date recorded (September 30th or October 1st, Petersfield) seem to give a clue.

Major Portal has very kindly caused a number of Jays to be sent by various owners and keepers in the area to me and also to the Natural History Museum. I have to thank the authorities of the Museum for having allowed me to examine the considerable series of skins preserved there in conjunction with those I skinned. This series is certainly puzzling as most of the birds have not the very definite distinctions of the Scandinavian typical bird as compared with the British Jay. There is a small proportion which seems certainly to be British, but this mixture would be likely as the birds were shot after the flocks had settled down for a time in various coverts. Most are, however, I consider, paler and greyer than British birds, but many of them are not so grey as northern ones. It has been remarked that the Jay in Holland is somewhat intermediate and if these Jays came from northern France (whence specimens for comparison are scarce) we might expect to find still greater intergradation.

Dr. P. R. Lowe has also remarked on the incursion and his views on the subject, expressed at the November meeting of the British Ornithologists' Club, should be consulted.

H. F. WITHERBY.

FEEDING HABIT OF JAYS.

THE recent gale which brought down bushels of acorns from the oak trees at Sway, Hampshire, was a godsend to the Jays (*Garrulus g. rufitergum*) which assembled to feed on the windfalls. Their procedure was to swallow one acorn and another, then with a third in its beak each bird flew off to regurgitate and break them up in a more private place. This must have been done quickly as they soon returned for more. A number of times the Jays were seen to swallow three acorns before retiring carrying a fourth, on each occasion the crop being excessively distended, causing the feathers to bristle out. At times, when an acorn was very large, the bird had great difficulty in swallowing it and flew with the beak fixed widely open unable to carry off another. When the birds returned, often they would sail down with wings outspread, the primary tips upturned, and drop on to the back of another, knocking him roughly aside to take his acorn, though there were far more than enough for all—a hawk-like action as though “pouncing”.

GEORGE MARPLES.

IMMIGRATION OF CROSSBILLS.

WE have received the following further notes, and readers are referred for previous information to pp. 112-113, 148-149, 175-176.

ORKNEY.—At Finstown, eight on July 3rd, parties of four, eleven, and fifteen on 4th, and following that odd birds almost daily for a month, the last on August 9th. Many reports from various parts of Orkney, but numbers not so great as have been usual in former immigrations (A. Woods).

YORKSHIRE.—Six or eight at Thornton-le-Dale on September 10th (M. S. van Oostveen).

NORTHANTS.—Numbers at Aynho, near Banbury, on July 21st, and eight or ten, same date, at Burton Dassett in Warwickshire (W. B. Alexander).

SUFFOLK.—Seven seen by Mr. and Mrs. S. H. G. Barnett in the first week of July, near Walberswick (H. Tetley).

GLOUCESTERSHIRE.—Twelve over Stanway Hill, July 24th (W. B. Alexander).

SOMERSET.—Fifteen to fifty have been seen since mid-October by Mr. G. E. Clothier at Long Ashton, near Bristol (H. Tetley).

OXFORDSHIRE.—At least fifteen seen by keeper in Cornbury Park first week July (W. D. Campbell). Some near Ewelme, October 13th, and six near Swyncombe, 21st (W. B. Alexander).

BERKSHIRE.—Numerous reports of their presence in July and August in Bagley Wood, Tubney Wood and plantations about Dry Sandford and Frilford (W. B. Alexander). Twelve in Windsor Great Park, October 20th, feeding on small cones of eastern hemlock (*Tsuga canadensis*), odd birds in other parts of park (E. L. King).

HAMPSHIRE.—Heard flying over Strathfield Saye Common, where many worked cones, July 28th (W. B. Alexander).

SUSSEX.—About twenty, July 6th, seven on 7th, nine on 9th, at Crowborough (M. F. B. Bell). Many parties in Bayham Woods, Frant, September and October (R. Ware).

KENT.—Eight to twelve, beginning November, at Matfield (G. H. Brown).

TWO BLUE TITS BUILDING IN BEEHIVE.

AN unusual case of nesting of the Blue Tit (*Parus c. obscurus*) was reported to me by a friend this year. On opening a beehive to put a new frame of sections into it, he was surprised to find two Blue Tits' nests, both containing young, in the space between the felt cover and the roof. The birds went in and out through the small ventilation hole in the front of the roof. The hive measured fifteen inches by seventeen inches. One nest was about half-way along one side of the hive, and the other in the left-hand corner, away from the entrance hole. There was a full and healthy swarm of bees in the hive, but the sheet of felt over the top sections prevented them getting into the space where the birds were nesting.

My friend tells me that Blue Tits will alight on the board in front of a hive and peck it till a bee comes out, when they instantly pounce on the insect and eat it; but he says this is only done by the birds in hard weather. E. ARNOLD WALLIS.

GREAT SPOTTED WOODPECKERS IN SHETLAND.

THE incursion of Great Spotted Woodpeckers (*Dryobates major major* (?)) into the Shetland Islands this autumn, as reported (*antea*, pp. 173-4), appears to have been notable. A correspondent informs me that these birds were scattered all over Yell during August, but only a pair or two in each place. The Woodpeckers were observed to be finding their food on larch fencing-posts, picking off the bark, presumably in search of insects underneath. My informant observed one hanging on to a clothes-pole at his house at Mid Yell on October 5th. The invasion of 1935 would seem to have been comparable with that which Saxby (*The Birds of Shetland*, p. 138) describes as having occurred in September, 1861. The author's account of the habits of these birds during their sojourn in the Islands makes very good reading. Saxby states that nothing more

was seen of the species until September 26th, 1869, when another flock arrived. On both occasions the incursions occurred with steady south-east winds, and the longer the birds remained the more the claws and tails became worn.

WILLIAM E. GLEGG.

SPOONBILL IN ISLE OF MAN.

ON November 1st, 1935, there was a Spoonbill (*Platalea leucorodia*) near Langness. It was evidently very tired but flew when I approached. It had no crest and no buffish tinge on the neck so far as I could see.

H. W. MADOC.

BEWICK'S SWAN IN MIDDLESEX.

WHEN at Staines on October 27th, 1935, I had an excellent view, through a telescope and at a short range, of a young Bewick's Swan (*Cygnus b. bewickii*). The bird, which showed no fear of my presence, stood for a long time on the concrete bank of the reservoir close to the water. It was smaller than a Mute Swan or Whooper. It frequently gave a resonant and somewhat metallic cry, similar to that uttered occasionally by the young Bewick's Swan, which was caught in Surrey and taken to the Zoological Gardens, Regent's Park, on December 18th, 1933 (*antea*, Vol. XXVII., p. 262).

In general appearance the Staines' bird was very like the Surrey specimen at the date of its capture, when the latter was, presumably, the older bird by about two months. The bills of the two swans, however, presented a marked contrast, which may have been due to difference in age. The bill of the Staines' bird was not "flesh-colour", but dark with a pinkish tinge most pronounced round the nostrils and near the edges of the upper mandible; while the area which in the adult is yellow was dark grey, not "of a dull whitish colour".

Mr. F. R. Finch and Mr. W. E. Glegg also saw the bird, and examined it carefully through telescopes. They authorize me to say that they concur in my identification.

There is no previous record of an occurrence of Bewick's Swan in Middlesex.

A. HOLTE MACPHERSON.

EXHAUSTED LEACH'S PETREL REVIVED WITH COD-LIVER OIL.

WITH reference to the note about the Storm-Petrel revived with olive oil (*antea*, p. 180), it may be of interest to record that I was given a Leach's Fork-tailed Petrel (*Occanodroma l. leucorrhoa*) which had been found exhausted, but uninjured,

on Woodford aerodrome, near Stockport, Cheshire, on October 10th, 1935, after the gale. I took it home and forcibly fed it through a dropper with cod-liver oil, which it seemed to appreciate; by the evening it was able to fly round the room, but rather weakly. Unfortunately it escaped in the garden the next day at Wilmslow, still very weak in its flight, thus frustrating my intention of releasing it in a more suitable place.

EDWIN COHEN.

STOCK-DOVES ALIGHTING ON WATER.

ON October 12th, 1935, I was with my uncle, Mr. F. R. Hoare, at the Great Water at Gunton, Norfolk, when to our surprise we saw two Stock-Doves (*Columba oenas*) flying low over the lake, come right down, and one actually sat on the water for a second or two and then rose off it again. While we were still looking through our glasses two more Stock-Doves did precisely the same, and rose off the water with a distinct splash.

M. BARCLAY.

AMERICAN PECTORAL SANDPIPER IN DORSET.

ON September 22nd, 1935, I was able to watch an American Pectoral Sandpiper (*Calidris melanotos*) in Poole Harbour. It was feeding on the swampy salt-marsh between the mouths of the rivers Wareham and Frome, known as Swineham Point.

The following is a summary of the most important field-characters noted; most of these observations were made at a distance of only a few yards through 6x binoculars:—

Size.—Same as, or slightly larger, than a Dunlin—no direct comparison available.

Legs.—Yellow, but of a rather dull hue. This was what first aroused my interest in the bird, and I made absolutely certain of it.

Bill.—Dark or black, slightly, but quite distinctly, decurved.

Plumage.—Heavy dark streaks on breast contrasting with white abdomen. Crown rather dark, tinged reddish. Back and mantle fairly dark, the majority of the feathers with black centres and edged buffy or whitish. Eyestripe not particularly pronounced.

In flight there was no very distinct wing-bar; there were, however, some ill-defined lightish patches on the wing. The most noticeable flight-character was a dark line down the rump, upper tail-coverts and tail, bordered by a pale or white patch on either side. The length of the central tail-feathers was

not noticed, as I had no idea at the time what bird I was looking at and did not know what special characters to look for.

Note.—In flight it uttered, at short intervals, a call which I found very hard to put on paper. Totally inadequately, as I was aware at the time, I wrote it as “tch-wee”.

Habits.—Rather Snipe-like in some ways. It would creep behind tufts of rushes in a stealthy manner to try and escape observation, and I strongly suspect it actually crouched and hid, after running a short distance, for on one occasion, though I marked it down to an exact spot only twenty yards from me, it was over five minutes before I saw it again. In spite of this rather Snipe-like secretiveness it was reluctant to take wing and allowed of approach to within four or five yards, sometimes continuing to feed unconcernedly. Once it stopped feeding to bathe in a pool of muddy salt water.

Next day the Rev. F. C. R. Jourdain and I searched in vain for it in the same place.

This is the first recorded occurrence in Dorset. The great gale of September 16th-17th was probably the reason for its appearance.

K. B. ROOKE.

AMERICAN PECTORAL SANDPIPER IN IRELAND.

A SPECIMEN of the American Pectoral Sandpiper (*Calidris melanotos*) was shot on September 23rd, 1935, by Mr. G. Fausset, while snipe shooting near Ballina, co. Mayo. Mr. W. J. Williams, to whom the specimen was sent for preservation, and who has previously handled specimens of this species, had no difficulty in identifying it from the streaked markings extending from the chin to the middle of the breast contrasting abruptly with the white plumage below; and from the absence of white on the rump. The tail formula was also found to agree with that in the *Practical Handbook*. The skin was seen by me in fresh condition. This is the fifth recorded occurrence of the species in Ireland and the third from the district mentioned.

G. R. HUMPHREYS.

YELLOWSHANK OBSERVED IN ISLE OF MAN.

ON October 27th, 1935, I was at a pool near Langness on the south coast of the Isle of Man, and it was then, and had been, blowing a gale from the W.S.W. I was accompanied by two good observers and we all had binoculars. Not ten yards from us, on the edge of the pool, was a bird which I made out to be a Yellowshank (*Tringa flavipes*). The range was so short that we could see the details very well, and the bird

rose and subsequently settled near some Common Redshanks, which made comparison with them easy. The bill was all dark, hardly as long as that of the Redshank and very slightly bent upwards. The legs were yellow and had a golden appearance unlike the yellowish legs of an immature Redshank. The bird was also longer in the leg and stood roughly half an inch higher than the Redshanks. The upper-parts were generally of a grey-brown with here and there a white tick mark. The upper-breast was slightly streaked with brown and so was the rump. I may add that the breast was not so streaked in this specimen as the Yellowshank I saw at Cambridge on April 13th, 1934. In flight the bird showed no white in the wing which appeared all grey, nor did one notice white on the rump, so that it had a very different appearance from the Redshank when in flight, and also on coming down when it raised its wings. The under-wing had a suggestion of brown, not so white as a Redshank. I also noticed that in flight the legs showed beyond the tail, which is not so with the Redshank. The bird's movements were graceful, not so jerky as in a Redshank, and it had a slender appearance.

H. W. MADOC.

BLACK-HEADED GULLS FEEDING ON BEETLES.

I OBSERVED a small party of Black-headed Gulls (*Larus r. ridibundus*) feeding on a small beetle, which was flying in the air along the side of the Pen Ponds, Richmond Park, Surrey, on October 7th, 1935. As the result of continued acrobatic efforts, which must have appeared somewhat ludicrous to the onlooker, I managed to catch three of the insects in my hand. I submitted these specimens to Mr. W. R. Sherrin, who identifies them as *Aphodius contaminatus*. The weather was particularly fine, brilliant sunshine and a cloudless sky accompanying a relatively high temperature, and probably accounted for the presence of the beetle in large numbers.

WILLIAM E. GLEGG.

LAND-RAIL LAYING TWICE IN TWENTY-FOUR HOURS.

WITH regard to Mr. C. J. Carroll's note under the above heading (*antea*, p. 152), I find I have a similar record.

On May 22nd, 1909, I found a Land-Rail's nest, with one egg, at Loughmore, Limerick. I visited the nest every day at 4 o'clock p.m. until the full clutch was laid. Here are my notes :—

May 23rd, two eggs—24th, four eggs—25th, five eggs—26th, seven eggs—27th, eight eggs—28th, nine eggs—29th ten eggs.

Thus, twice during the period, the bird laid two eggs in twenty-four hours.

P. G. KENNEDY.

INTERNATIONAL EXHIBITION OF NATURE PHOTOGRAPHY.—Naturalists are greatly indebted to *Country Life* for organizing this splendid exhibition and to the Trustees and officials of the Natural History Museum, who have not only helped in preparing it but granted the use of the Whale Hall for the exhibition.

Besides many wonderful photographs of mammals, some nine hundred of birds are exhibited, the majority being fine enlargements. Europe, America, Africa, India, Australia, New Zealand and Japan are represented, but about two-thirds of the total are of European birds and of these three-quarters are by British photographers.

The general standard of the photographs is very high and to particularize would be impossible without naming a large number. Apart from the high quality of the photographs themselves a general view of the subjects and the value of the photographs to the ornithologist gives one several impressions. The first is that the very large majority is confined to the bird at its nest and its immediate site. There are numerous interesting and remarkable photographs of this type, but photographs giving a general idea of habitat are few and far between, while those portraying birds in any of their many activities other than nesting arrest the attention by their rarity. Except for a few of the larger birds in flight and one or two notable exceptions of other actions, British photographers especially seem lacking in enterprise in this direction. In comparing the pioneer photographs of birds of some thirty-five years ago with those of to-day one cannot but be disappointed that, apart from a better technique and a greater variety of species portrayed, so little advance has been made in showing by "still" photographs any of the numerous phases of bird-life of which it would be so valuable to have photographic records. It is to be hoped that by the time another such exhibition is held an advance in this direction, admittedly difficult, will be manifest.

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CONTENTS OF NUMBER 8, VOL. XXIX., JANUARY I, 1936.

	PAGE
Skokholm Bird Observatory. By R. M. Lockley	222
Notes on Fulmar Petrel Colonies in Northumberland, 1935. By Mary J. Levett	230
Notes :—	
Inter-breeding of Carrion-Crow and Hooded Crow in Ireland (L. W. Montgomery and G. R. Humphreys)	238
Colour of the Bill of the Twite (Fred Taylor)	239
Snow-Bunting in Inner London (G. C. Low and E. G. Pedler)	239
Snow-Buntings in Chichester Plain (J. J. Cuth)	239
Syke's Wagtail as a British Breeding Bird (N. F. Ticehurst and W. Walmesley White)	239
Distribution and Some Habits of Willow-Tit in Sussex (R. Ware)	241
Unusual Nesting Site of Red-backed Shrike (W. H. Bramwell)	243
Song-Thrushes Feeding on Water-Snails (J. S. Taylor)	243
Blackbird Eating Flowers (H. Massey)	243
Black Redstart in Worcestershire (A. J. Harthan)	244
The Food of Nestling Swallows (J. F. Thomas)	244
Results of Ringing and Trapping Swallows (J. F. Thomas)	245
Lesser Spotted Woodpecker in Carnarvonshire (M. Mitchell)	246
Kestrel Eating Prey in Air (G. B. Gooch)	247
Hen-Harrier and Scandinavian Lesser Black-backed Gull in Essex (Dr. N. H. Joy)	247
Numbers of Montagu's Harriers Breeding in Britain in 1935 (H. F. Witherby)	247
Pellets of Montagu's Harrier (Dr. C. B. Ticehurst)	248
Sparrow-Hawk Rounding up Magpies (Hubert E. Pounds)	249
Great White Heron in Wiltshire (J. Berry and C. R. Stonor)	249
Whooper Swan in Yorkshire in June (P. F. Holmes)	251
Bewick's Swans in Lancashire (Thos. Baddeley)	251
Garganey in Monmouthshire (J. G. Williams)	251
Ruff in Denbighshire (M. Mitchell)	251
Red and Little Stint in Gloucestershire (H. H. Davis)	252
Red-necked Phalarope in Yorkshire (P. F. Holmes)	252
Eastern Little Bustard in Hampshire (K. J. A. Davis)	252
Short Notes :—	
Weight of Hawfinch, Immigration of Crossbills, Late Nesting of House- Sparrow, Late Stay of Lesser Whitethroat, Dartford Warbler in North Surrey, Black Redstart in Surrey, Late Swallow in Kent, Late Sand- Martin in Northumberland, Late Stay of Swifts, Hobby Passing Food on the Wing, Osprey in Northumberland, Carrier-Pigeon Alighting on Water, Oyster-Catcher's Nest with Five Eggs, Black-tailed Godwits in Sussex and Dorset, Black-tailed Godwit in Montgomery, Arctic Terns Feeding on Biscuit.	252
Review :—	
Territory. Some Recent American Work (D. and H. L. Lack)	253
Letters :—	
A Chart of Bird-Song (Stanley Morris and Miss A. Hibbert-Ware)	253
Pied-Wagtails Chasing Martins (M. Mitchell)	253
Sea-Bird Movements (Seton Gordon)	259
Diurnal Movements of Manx Shearwaters not Migratory (Bertram Lloyd)	259

SKOKHOLM BIRD OBSERVATORY.

BY

R. M. LOCKLEY.

HISTORICAL.

THE history of the observatory begins in a rather curious way. It has evolved out of an attempt to farm this remote Pembrokeshire island by running sheep over its 240 acres of rough grazing, heather, bracken and thrift. As the early details of my discovery of, and decision to live on, the island have already been given in the book *Dream Island* (1), I need not repeat them here.

The island, as I first knew it in 1927, was swarming with rabbits. I employed two men to catch them down, even to exterminate them, if that were possible. If I achieved this extermination I should be in a position to improve the land without fear of spoliation by rabbits, which are notoriously the greatest hindrance to the grass farmer.

My rabbit-catchers advocated the extensive use of steel traps, and afterwards, that all the burrows should be dug in. I would not have the latter done, as it was tantamount to a "lock-out" of the thousands of Puffins, Shearwaters and Storm-Petrels which used them in the summer. But I agreed to any other method that did not ruin the homes of these birds. During that first winter I was so busy on repair work at the old buildings on the island that I did not enquire into the procedure adopted by the trappers. I only knew that they were doing fairly well, and that by the end of January they had caught some three thousand rabbits. Occasionally they brought in a Woodcock or Snipe which they said had been caught in the traps. Of the great number of other birds of more inedible kinds which they had caught they were, perhaps, aware of my feelings in the matter, careful to say and show nothing. And I consoled myself that the use of traps, obviously cruel, was justified in this instance as a means to the pastoral life I desired to lead.

Two years later the rabbits were proving to me the country belief that "the more you kill them the faster they breed". This is scientifically true, since the fewer there are the more plentiful the food and the greater the stimulus to breed. And there are no natural mammal enemies in the form of stoat or weasel to check the increase on Skokholm. At the same time my suspicions were aroused as to the number of birds that were being taken daily in the rabbit-traps, and I made a point of visiting these at dawn with the trappers for a few

mornings. The result was an unpleasant shock. Thereafter I insisted that everything, alive or dead, that had been trapped, should be brought home with the rabbits each morning. In a few days a formidable list had been compiled. It included Fieldfares, Redwings, Blackbirds, Song-Thrushes, Robins, Stonechats, Meadow- and Rock-Pipits, Sky-Larks, Hedge-Sparrows, Lapwing, Snipe, Woodcock, Water-Rails, Gulls and Little Owls, while so lightly poised were the triggers of the traps, that Wrens, mice and frogs had also been caught. On the day that a Buzzard was caught I determined that traps would never again be used on the island. (We were fortunately able to set the broken leg of the Buzzard, and it was healed by the time we released it some ten days later).

At first I had told the trappers that traps might only be set in the mouths of rabbit-holes, since I had previously found many illegally set in the open. But this limitation did not check the number of birds caught. The fresh earth covering the traps at the entrances to warrens was just as attractive to worm-hunting Thrushes, Blackbirds, etc., and in addition many birds, lacking other refuges, actually went down rabbit burrows for the sake of cover in bad weather and at night.

I had by now a thriving flock of sheep on the island, which reached its maximum of one hundred breeding ewes in 1932. However, the determination not to use traps was by then having its effect. The use of snares, ferrets and gas was rather less than half as effective as the abominably efficient steel-traps. The rabbits were gaining each year. In the drought years of 1933 and 1934 they were as numerous as they had been in 1927. In fact, by the autumn of 1934, I had to admit defeat or resort to traps again if I wanted to have any grass on which to winter my sheep, of which there were now 200 ewes and lambs. In September, 1934, I hired a barge and a steam tug and removed therein every sheep. The rabbits had won.

Although the loss of the sheep as a source of income was a serious one, I was in other respects relieved. I argued, perhaps wrongly, that the more I persecuted the rabbits, the more their burrows would fall into disuse, and the less cover there would be for nesting Shearwaters and Puffins. Further, the abundant wild flowers of the island—bluebells, campion, thrift, etc.—were rabbit-proof (by natural selection), but not sheep-proof; the sheep had attacked and trampled these down in the last two years of their occupation. Nevertheless I should have been glad to have been able to exterminate the

last rabbit had it been possible. No doubt a new and interesting sheep-proof flora would have sprung up.

Sheep-farming would have meant the gradual treading in of the empty rabbit burrows, although it may not necessarily have resulted in the exile of the burrow-nesting sea-birds except, perhaps, on the flat ground. On sloping ground, as at St. Kilda, the presence of such birds with sheep is compatible without the rabbit as architect and excavator. There is no doubt, however, that the absence of an attempt to farm the island within the last forty years has resulted in the present flourishing state of the sea-bird colonies on Skokholm. From information which I have been able to gather, all pelagic and maritime species were comparatively scarce as breeders at the end of the last century, when the island was under cultivation. Hence my decision—enforced because I would not use steel-traps any longer—to allow the rabbits, and with them the sea-birds, to continue to remain in undisputed possession of the island, was in some ways to me, as a bird-lover, a satisfactory one.

Coincident with the erection, in 1933, of the migratory bird trap mentioned below, I had foreseen that the island would be so overrun with rabbits in another twelve months that it would no longer be possible to keep sheep upon it. I was considerably perplexed as to what might be devised for the continuance of the island as a bird-sanctuary if, as seemed likely, work should call me to the mainland when once the sheep had been sold off. And I decided that when that moment came the island should be declared a Bird Observatory where all might come who were interested in the study and preservation of birds, and who were prepared to contribute to the cost of keeping the Observatory in proper running order. In this direction I would acknowledge gratefully the support of the Royal Society for the Protection of Birds, which for a number of years has contributed a sum equal to the lease-rent of the island. I would also place on record my thanks for the interest and concessions extended by the owner of the island, Col. R. V. Lloyd-Philipps, of Dale Castle, Pembrokeshire.

ORNITHOLOGICAL WORK.

Skokholm, perhaps largely because its lighthouse flashes red at night, does not attract the immense number and variety of migrants, both common and rare, which are recorded at islands where white-flashing lighthouses exist, as at Heligoland, Fair Isle, the Isle of May, and Bardsey Island. But in

favourable winds it receives its share, perhaps, especially in the spring, of coastal migration. For some time I dallied with the idea of erecting a migratory bird trap on the island to catch some of these passing migrants, following successful experiments in the ringing of sea-birds (2). In 1933, after obtaining the advice of Mr. W. B. Alexander and other ornithologists who had had experience in trapping birds for ringing, I decided to erect in miniature one of the traps of the famous Fanggarten of the Helgoland Vogelwarte. This was done with the manual assistance of my wife and several friends, and a full account of the procedure with plans has already been given in the *Countryman* (3). The first drive into this trap was made on the evening of August 7th, 1933, and resulted in the capture of five Willow-Warblers. Since that date the following numbers of birds have been caught in the trap :—

	1933	1934	1935*
No. of days when trapping was attempted ...	53	82	62
Total birds trapped ...	233	324	346
Total birds ringed ...	175	240	270
No. of birds retrapped ...	58	84	68
No. of species trapped ...	19	22	27
Daily average ...	4.20	3.95	5.40

No attempt was made to indulge in regular “ beating ” in the neighbourhood of the garden to induce birds to enter the trap, which was in its experimental stage, and had to prove its worth without these aids, for which I had no time myself. Moreover the cost of rings was a consideration. I had to use them carefully in view of the fact that in the same years the following numbers of rings had been used in ringing sea-birds, and other birds outside the trap :—

1933	1934	1935
874	760†	c. 1,000†

Shepherding has one considerable advantage to the ornithologist. The daily round of the sheep enabled me to make regular censuses of the bird-population at all times of the year. A brief outline of this work has already been published (4), and for the rest the Bird Observatory possesses voluminous records from which a very brief summary of the bird life of the island is given at the end of this article.

In 1934 the sheep were removed, and the island became

*Including a number caught in new trap erected in August, 1935.
†Not including large numbers ringed by C. Wontner-Smith.

what I had planned—an Observatory open to all who wished to observe, and to those who were competent to ring birds. The announcement that students of birds would be accommodated on the island was conveyed by Mr. W. B. Alexander to the British Trust for Ornithology (5).

It was plain to a number of observers who visited the island subsequently that the bird-ringing trap in the garden, although very successful under certain weather and observation conditions, was missing a great deal of the visible small bird migration. As suggested in the *Countryman* (l.c., p. 436), this trap was not by any means placed in the most favourable position on the island; it had been placed in my garden because that was the only site secure from the attention of sheep, goats and ponies. But another site existed in a hollow where a small stream ran down through tall annual herbage to the shore. Various friends were good enough to suggest that the further capital expenditure which would be necessary in erecting a full size Heligoland-type trap in this very favourable site could be met as a result of a public appeal to interested persons, and that a fund might thereby be created to meet all such capital expenditure in the future. This has a precedent in the successful appeal (6) of the Midlothian Ornithological Club for funds to run the Bird Observatory which was established in October, 1934, on the Isle of May.

Before launching an appeal it was decided to wait for a response of observers to prove that sufficient interest in the success of the Observatory would be assured. Unfortunately during part of the summer of 1935 I had to close the Observatory during my absence abroad, but for the rest of the summer the keenness shown by a large number of applicants to visit the island proved beyond all doubt that we should be justified in making an appeal for funds. Sir William Beach-Thomas kindly offered to institute this by an announcement of our immediate requirements for a new trap in the *Spectator* (7). The result was a sum slightly exceeding the £21 17s. 10d. expended in the purchase and carriage of the materials for the new trap.

This was duly erected, with the enthusiastic help of some ten observers, late in August, 1935. On the 25th, when the trap was declared open, the following birds were caught in it:—a male Redstart, a Spotted Flycatcher, a Willow-Warbler, a Whitethroat, four Meadow-Pipits, a Common Wheatear, a Rock-Pipit and a Manx Shearwater. Subsequently White and Yellow Wagtails, Greenland Wheatears, Chiffchaffs, Stonechats and Snipe were among the more interesting



Entrance of new Migration Trap on Skokholm, showing pools
of water from natural spring.
(*Photographed by H. Morrey Salmon.*)

species caught during a fortnight's working of the new trap.

The most pleasing enthusiasm of the many observers has made it possible to continue, during a greater part of the season when the island was inhabited, the daily census work begun in 1927. Time only is needed to work out interesting graphs and conclusions from the considerable data now accumulated. While there has been no lack of collaboration in the study, both by ringing and direct observation, of the several terrestrial, maritime and pelagic species breeding or visiting the island, and work has also been carried out at Grassholm. In this connection Mr. C. Wontner Smith's work in ringing 4,047 birds of fifteen species on these islands, in 1934, is noteworthy as a fruitful achievement (8). The plotting each year of the sites of nests of all species (save sea-birds) on a 26 inches to the mile scale map, has yielded some interesting results, chiefly showing how small are the fluctuations in numbers and the deviation from established breeding-sites.

THE FUTURE.

Much yet remains to be done, however, in the further organization of the work and smooth running of the Observatory. Perhaps the most urgent need at the moment is that of a suitable building to house the record-books, rings and ringing apparatus and books, and library (and also a collection of bird-skins kindly donated by Mr. D. H. Meares), thus providing a study where observers can meet and work in comfort. It has been suggested that the ideal site for this is on the sheltered slope half-way between the harbour and the new trap. At present these books and apparatus are inadequately housed in the living quarters of the converted farm house and buildings, where the limited accommodation is already much taxed in providing living quarters for observers. Again, the question of rings, where it is contemplated using several thousand, is no light financial one. Thanks to the generosity of Mr. H. F. Witherby, who made a personal donation of 3,000 rings early in 1935, this problem was temporarily solved. But it is obvious that if the work is to proceed as planned, the cost of rings in the future will become a serious consideration.

The Skokholm Bird Observatory Fund, therefore, inaugurated by Sir William Beach-Thomas, will remain open for donations to this end—to defray the cost of erecting a suitable library and observation room as detailed above, and the cost of rings and ringing apparatus, including repairs where necessary to the existing trapping structures. Messrs. G. C. S. Ingram and H. Morrey Salmon have consented to

act as honorary auditors of the accounts of this fund. All subscriptions, however small, will be welcome. They should be addressed to the writer at Marloes, Haverfordwest, Pembrokeshire, and crossed "Skokholm Bird Observatory Fund".

No attempt is made to run a fashionable "hotel" for observers on the island, but the present charges for accommodation and food are necessarily such as to cover the considerable expenses of catering under unusual circumstances, and the cost of the upkeep of the present buildings. In this way alone does it seem possible to maintain a sanctuary and observatory on self-supporting lines. Possibly in the future, if Government or other grants are available (as at Heligoland Bird Observatory to-day), it will be convenient to reduce the charges to a nominal fee. At present it is suggested that regular supporters and observers shall be admitted to the island at "season-ticket" rates, and this plan is to be adopted in 1936.

In conclusion may I say that the future of the island as a bird observatory must depend entirely on the support of a succession of observers, for which in part, this article is in the nature of an appeal. It is difficult to close, too, without expressing my thanks to all those, too numerous to mention individually here, who in various ways during the last two years have helped to encourage and support the idea of Skokholm as a Bird Observatory.

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THE BIRDS OF SKOKHOLM.

This list, for lack of space, is necessarily but a brief guide, compiled from records obtained between October, 1927, and December, 1935. Reliable earlier records are scarce, but Mr. Charles Oldham visited the island July 6th-7th, 1925.

RAVEN (*Corvus c. corax*).—One pair breeding regularly. Up to ten occasionally seen autumn and winter.

CARRION-CROW (*Corvus c. corone*).—Up to eleven pairs breeding. A passage-migrant in small numbers, March 20th to April 5th.

ROOK (*Corvus f. frugilegus*).—Rare visitor except on spring migration, when numerous in N.E. winds from March 7th to early May. The later birds seem all to be one-year-olds.

JACKDAW (*Colæus monedula spermologus*).—Casual, and less numerous on spring migration, when it appears at the same time as Rook.

CHOUGH (*Pyrrhocorax p. pyrrhocorax*).—One pair bred in 1928 successfully, but not since. A resident at other times of the year. Nine together is the largest number counted in 1927, but they are scarcer to-day.

STARLING (*Sturnus v. vulgaris*).—Numerous from end of June to end of April. A flock of about 200 usually present in winter. Large armies move towards Ireland and also S.W. to the open sea during late autumn and winter. In N.E. winds at all seasons they appear from N.W. regularly. The return movement in the spring is less prominent.

GREENFINCH (*Chloris ch. chloris*).—Regular passage migrant, October 15th to end of November, and mid-April. Casual in winter.

BRITISH GOLDFINCH (*Carduelis c. britannica*).—Casual in all months except June-September. Most numerous October-December.

TWITE (*Carduelis flavirostris*).—A male, April 8th, 1933 (*B.B.*, XXVII., p. 24).

REDPOLL (*Carduelis flammea* ? subsp.).—Several times recorded in winter by light-keepers, from their gardens. On the three occasions I have seen them (November, 1929, 1930) I was unable to determine the race.

LINNET (*Carduelis c. cannabina*).—Bred in 1929, one pair. Chiefly a winter visitor in small flocks, but seen in every month except July.

CROSSBILL (*Loxia c. curvirostra*).—One, July 5th, 1929 (*B.B.*, XXIII., p. 101).

CHAFFINCH (*Fringilla c. cœlebs*).—Common on passage late March to mid-April and October-November. Partly resident in winter. Not recorded between end of May and end of September.

BRAMBLING (*Fringilla montifringilla*).—Regular visitor to the coast opposite, late October and November. Irregular in November on Skokholm. A female, April 4th, 1934.

HOUSE-SPARROW (*Passer d. domesticus*).—A male, April 29th to May 2nd, 1928; a female, May 8th and 18th; a male, May 19th, 1931.

TREE-SPARROW (*Passer m. montanus*).—One, May 15th, 1934.

CORN-BUNTING (*Emberiza c. calandra*).—Casual, March to June.

YELLOW BUNTING (*Emberiza c. citrinella*).—Casual, February to June.

ORTOLAN (*Emberiza hortulana*).—A female, June 2nd, 1931 (*B.B.*, XXV., p. 79).

REED-BUNTING (*Emberiza s. schœniclus*).—Two, November 1st, 1929, April 26th, 1935.

SNOW-BUNTING (*Plectrophenax n. nivalis*).—Regular on passage, October 22nd-November 7th. One, March 3rd, 1932.

SKY-LARK (*Alauda a. arvensis*).—Between one to four pairs breeding. Abundant on passage flying W. and S., October and November; fewer on return in March.

MEADOW-PIPIT (*Anthus pratensis*).—38-45 pairs nesting. Abundant on passage, March-April, and August to mid-October. Very few remain for the winter.

WATER-PIPIT (*Anthus s. spinoletta*).—Two, October 8th, 1933, and July 18th, 1934 (*B.B.* XXVIII., p. 310).

ROCK-PIPIT (*Anthus s. petrosus*).—Up to 38 pairs breeding. Considerable numbers of juveniles are trapped July to October, but none on the spring migration. During the winter the shore is largely forsaken and this bird takes the place of the Meadow-Pipit over the whole island.

YELLOW-WAGTAIL (*Motacilla flava rayi*).—Passage, at times heavy, August 24th to mid-September. Scarcer in spring, late April to May 7th.

GREY WAGTAIL (*Motacilla c. cinerea*).—Three, October 15th, 1928, March 17th, 1929, September 4th-5th, 1933.

PIED WAGTAIL (*Motacilla alba yarrellii*).—One pair bred 1927-29, 1932, and in 1925 (*C. Oldham, in litt.*). Regular on passage March to mid-April. Casual in winter, and rare on autumn passage with White Wagtails.

WHITE WAGTAIL (*Motacilla a. alba*).—Regular on spring passage March 20th-April 14th, and abundant autumn, August 26th to end of October, birds of the year preceding the adults which chiefly pass in late September and October.

TREE-CREEPER (*Certhia f. britannica*).—One, July 26th, 1928.

COAL-TITMOUSE (*Parus ater* ? subsp.).—One very brightly-coloured bird seen constantly between November 8th, 1930, and March 6th, 1931.

GOLDCREST (*Regulus regulus* ? subsp.).—One, October 22nd, 1929.

SPOTTED FLYCATCHER (*Muscicapa s. striata*).—Regular on passage May 2nd-June 4th and August 7th-September 20th.

PIED FLYCATCHER (*Muscicapa h. hypoleuca*).—A few in autumn in most years, August 26th-September 18th. A male, May 1st, 1930.

CHIFFCHAFF (*Phylloscopus c. collybita*).—Numerous on both migrations, March 22nd-April 20th and August 26th-October 17th.

WILLOW-WARBLER (*Phylloscopus t. trochilus*).—Abundant passage migrant, April 6th-May 20th and August 1st to mid-September. Casual mid-summer.

GRASSHOPPER-WARBLER (*Locustella n. naevia*).—Irregular on spring passage, April 27th-May 9th.

SEDGE-WARBLER (*Acrocephalus schoenobaenus*).—One pair bred 1927-30. Regular on passage, April 28th-May 18th and August 19th-September 11th.

GARDEN-WARBLER (*Sylvia borin*).—Irregular, April 30th-May 22nd.

BLACKCAP (*Sylvia a. atricapilla*).—Irregular, April 29th-May 8th.

WHITETHROAT (*Sylvia c. communis*).—Abundant on passage, April 18th-May 26th and August 8th-September 21st. Casual mid-summer. One pair bred 1931-32. A pair feeding young, 1925 (*C. Oldham, in litt.*).

LESSER WHITETHROAT (*Sylvia c. curruca*).—One, November 3rd, 1927 (*B.B.*, XXI., p. 198). One, May 18th, 1932.

FIELDFARE (*Turdus pilaris*).—Regular, but very casual, in winter, November 1st to April 19th. Numerous in east winds. One, May 15th, 1928.

MISTLE-THRUSH (*Turdus v. viscivorus*).—Regular, but very casual, November to March. One, June 18th, 1932.

BRITISH SONG-THRUSH (*Turdus e. ericetorum*).—Abundant winter resident and passage-migrant, September 28th to mid-March. Occasionally, in hard east winds, thousands present. Casual in April. Not recorded May-August.

REDWING (*Turdus m. musicus*).—Passage-migrant and winter resident, occasionally abundant, November 1st to end of March. Casual April, and one, June 13th, 1929 (*B.B.*, XXIII., p. 69).

RING-OUZEL (*Turdus t. torquatus*).—Passage-migrant, March 26th-April 26th. One, October 2nd-3rd, 1933.

BLACKBIRD (*Turdus m. merula*).—One, occasionally two, pairs breed regularly. Autumn arrivals appear in mid-September, and the species is numerous, often abundant, until the end of March, frequent weather movements being observed.

WHEATEAR (*Enanthe æ. ænanthe*).—Abundant passage-migrant, March 10th to end of April, and end of July to October 29th; 9-14 pairs breeding.

GREENLAND WHEATEAR (*Enanthe æ. leucorrhœa*).—Regular on passage end of April-May, and end of August-September.

WHINCHAT (*Saxicola r. rubetra*).—Regular on spring passage, April 30th-May 2nd. Casual, June and August.

STONECHAT (*Saxicola torquata hibernans*).—Bred 1928 and 1932, one pair. Winter resident in small numbers, arriving late in June or July, and departing early April.

REDSTART (*Phœnicurus ph. phœnicurus*).—Casual, August 25th-October 3rd.

BLACK REDSTART (*Phœnicurus ochrurus gibraltariensis*).—One or two partly resident for short periods every year, March 5th-June 1st, and occasionally October-December (*B.B.*, XXVII., p. 201).

ROBIN (*Erithacus rubecula melophilus*).—As a rule a considerable passage from mid-August to October. Resident thereafter until March 24th.

HEDGE-SPARROW (*Prunella modularis occidentalis*).—Five to seven pairs breeding. Large influxes August-November.

WREN (*Troglodytes t. troglodytes*).—It is rather extraordinary that this bird does not breed, as it is numerous at other times of the year. Earliest date of arrival, August 7th. Latest date seen, May 15th.

SWALLOW (*Hirundo r. rustica*).—Abundant on passage, April 15th to mid-May, flying as a rule N.E. The autumn passage is S.E., September 9th-October 10th. Casual mid-summer. Extreme dates, April 5th and November 2nd. Has bred in most years, one pair.

MARTIN (*Delichon u. urbica*).—Scarce on passage with other Hirundines, April 15th-June 4th, and September 2nd-October 4th.

SAND-MARTIN (*Riparia r. riparia*).—Common on passage, April 9th to end of May, and August 14th-September 27th. Casual mid-summer.

SWIFT (*Apus a. apus*).—Regular but very casual migrant, April 22nd and any date after up to September 10th. With few exceptions Swifts fly in a westerly direction in all months.

NIGHTJAR (*Caprimulgus e. europæus*).—Casual between May 26th-August 29th.

HOOPOE (*Upupa e. epops*).—One, May 3rd, 1928 (*B.B.*, XXVII., p. 201).

CUCKOO (*Cuculus c. canorus*).—Bred 1928. Regular but scarce on passage, April 12th-May 29th. Young birds appear seldom, and even adults are irregular on autumn passage, July 12th-August 10th.

LITTLE OWL (*Athene noctua vidalii*).—Has bred, or attempted to, in most years. Small influxes occur in September, October and November and 5-10 are resident in winter.

SHORT-EARED OWL (*Asio f. flammeus*).—Rare visitor, September-December.

WHITE-BREASTED BARN-OWL (*Tyto a. alba*).—One present, November 7th-December 20th, 1929.

PEREGRINE FALCON (*Falco p. peregrinus*).—A pair bred, 1930 and 1932. Casual at all other times, and resident in winter.

MERLIN (*Falco columbarius æsalon*).—Casual in winter, November-March.

KESTREL (*Falco t. tinnunculus*).—Winter resident, and casual between August and May.

BUZZARD (*Buteo b. buteo*).—Breeding in most years, one pair. Up to eight seen together at other months, and two to six resident in autumn and winter.

MONTAGU'S HARRIER (*Circus pygargus*).—One, August 5th, 1935.

SPARROW-HAWK (*Accipiter n. nisus*).—Casual August-September and March.

HERON (*Ardea c. cinerea*).—Regular migration westwards, July 17th to mid-September. Casual June-November.

GREY GOOSE (*Anser ?*).—Occasionally seen in small skeins, September-May, but species not identified.

SHELD-DUCK (*Tadorna tadorna*).—Rarely seen passing at sea, though numerous on mainland of Pembrokeshire.

MALLARD (*Anas p. platyrhynchos*).—One pair occasionally breeding. Abundant on passage August-November, and winter resident. Drakes appear at mid-summer and moult into eclipse, when some 30 are resident.

TEAL (*Anas c. crecca*).—Up to 50 resident mid-August to mid-April.

WIGEON (*Anas penelope*).—Abundant winter resident October-April. Casual, August-September.

SHOVELER (*Spatula clypeata*).—A pair, April 30th, 1934, and July 6th, 1935.

COMMON SCOTER (*Oidemia n. nigra*).—Frequently seen at sea in all months of the year.

CORMORANT (*Phalacrocorax c. carbo*).—Seen in all months, but scarcer September-February. Immature birds frequent the cliffs in late summer.

SHAG (*Phalacrocorax a. aristotelis*).—One pair breeding. Numerous throughout the year, resting on cliffs.

GANNET (*Sula bassana*).—Numerous offshore in pursuit of mackerel shoals, June-September. Scarce November-March.

STORM-PETREL (*Hydrobates pelagicus*).—At least 500 pairs breeding. Arriving April 26th. Last young leave in November (*B.B.*, XXV., pp. 206-211).

MANX SHEARWATER (*Puffinus p. puffinus*).—Probably more than ten thousand pairs breeding. Arriving February 2nd. Last young leave in October (*B.B.*, XXIII., pp. 202-218, and XXIV., pp. 202-207).

SOOTY SHEARWATER (*Puffinus griseus*).—Fairly regular, migrating N.W. past the island during first week in September.

FULMAR (*Fulmarus g. glacialis*).—Since 1931, an occasional light phase adult seen cruising near the island in May and June each year.

LITTLE GREBE (*Podiceps r. ruficollis*).—One, October 21st, 1929.

GREAT NORTHERN DIVER (*Cymbas immutabilis*).—Common offshore, September-March.

RED-THROATED DIVER (*Colymbus stellatus*).—Less numerous than Great Northern at same season.

WOOD-PIGEON (*Columba p. palumbus*).—Two, June 23rd, 1929, and May 1st, 1930.

TURTLE-DOVE (*Streptopelia t. turtur*).—Regular on passage, May 9th-June 17th. Irregular late August.

OYSTER-CATCHER (*Hæmatopus ostralegus occidentalis*).—Up to 46 pairs breeding. Large flocks along the shore in the early spring. Resident in winter.

RINGED PLOVER (*Charadrius h. hiaticula*).—Casual, August and September.

GOLDEN PLOVER (*Charadrius apricarius* ? subsp.).—Large flocks in severe weather (*B.B.*, XXIII., p. 158). Usually arriving early in November, according to weather, and very erratic. Well-marked spring passage throughout April. One, May 5th, 1932.

GREY PLOVER (*Squatarola s. squatarola*).—Casual, August 24th to mid-November.

LAPWING (*Vanellus vanellus*).—Up to 12 pairs breeding. Numerous at all other times and occasionally huge flocks. On December 17th, 1927, vast armies passed high overhead due west, a few days before Lapwing appeared in "thousands" in Newfoundland (*B.B.*, XXI., p. 215).

TURNSTONE (*Arenaria i. interpres*).—Resident throughout year along the shore, resorting to grass in bad weather. In May numbers appear to be in full breeding dress.

SANDERLING (*Crocethia alba*).—One, September 7th, 1934.

KNOT (*Calidris c. canutus*).—One, September 7th, 1934.

DUNLIN (*Calidris alpina schinzii*).—Regular but erratic migrant, singly or in small parties, August-September, March-May. Casual at other times.

LITTLE STINT (*Calidris minuta*).—One, September 11th, 1933 (*B.B.*, XXVII., p. 201).

PURPLE SANDPIPER (*Calidris m. maritima*).—Regular visitor and resident, late August-March.

COMMON SANDPIPER (*Tringa hypoleucos*).—Passage-migrant, April 20th-May 18th and June 30th-September 7th.

REDSHANK (*Tringa t. totanus*).—Increasingly common casual visitor all months except May.

GREENSHANK (*Tringa nebularia*).—One, September 9th, 1934.

BAR-TAILED GODWIT (*Limosa l. lapponica*).—Fairly regular, August 30th-September 11th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—One, May 22nd, 1933 (*B.B.*, XXVII., p. 201).

CURLEW (*Numenius a. arquata*).—Present throughout the year, and except in May, when one or two non-breeders only present, usually 30-40 resident.

WHIMBREL (*Numenius ph. phæopus*).—Passage-migrant, April 26th to end of May, flying N. and N.E., and August 15-October 1st. Casual mid-summer.

COMMON SNIPE (*Capella g. gallinago*).—Probably bred 1927 and earlier. Present in every month, and abundant September-March.

JACK SNIPE (*Lymnocyptes minimus*).—Common from October 7th-March 24th.

WOODCOCK (*Scopolax r. rusticola*).—Usually arrives in October with N.E. wind. Present throughout winter up to March 3rd.

COMMON TERN (*Sterna h. hirundo*).—Erratic passage-migrant in spring, May 10th-June 26th. Regular in autumn, August 22nd-

October 3rd, when the flight is usually to N.W. or N. Formerly nested (M. A. Mathew, *Birds of Pembrokeshire*).

LITTLE TERN (*Sterna a. albifrons*).—Irregular, September 9th-18th.

BLACK-HEADED GULL (*Larus r. ridibundus*).—Common offshore and occasionally over land, August-March. Have lately appeared April-June over the pond and bog as if intending to nest in the near future.

COMMON GULL (*Larus c. canus*).—Rare winter visitor, probably for lack of ploughed land, as it is abundant on the mainland then.

HERRING-GULL (*Larus a. argentatus*).—About 300 pairs breeding. Very few remain December, but breeding sites begin to be occupied in January.

SCANDINAVIAN LESSER BLACK-BACKED GULL (*Larus f. fuscus*).—One, April 2nd, 1934. This is the only bird satisfactorily identified out of many suspects.

BRITISH LESSER BLACK-BACKED GULL (*Larus f. graellsii*).—Some 800 pairs breeding. Arrives mid-March, leaves early September. Extreme dates, February 17th and September 26th.

GREAT BLACK-BACKED GULL (*Larus marinus*).—Up to 60 pairs breeding. Resident, but scarcer November-January.

KITTIWAKE (*Rissa t. tridactyla*).—Common offshore all the year, frequently sleeping, but not breeding, on the cliffs.

ARCTIC SKUA (*Stercorarius parasiticus*).—Casual at sea, August-September.

RAZORBILL (*Alca torda*).—Some 1,000 pairs breeding. Scarce offshore November, but common at other times. Approaches cliffs March, leaving in August.

NORTHERN GUILLEMOT (*Uria a. aalge*).—Five oiled birds of many washed ashore between September 16th and December 12th proved to be of this race.

SOUTHERN GUILLEMOT (*Uria a. albionis*).—Less than 200 pairs breeding, only one bird of which has white eye-ring (1933). Approaches cliffs February, leaving August.

LITTLE AUK (*Alle a. alle*).—Two or more, December 17th, 1928. One, January 15th, 1930; at least three, February 2nd, 1930; one December 12th, 1932 (oiled). All offshore.

PUFFIN (*Fratercula a. grabø*).—About 20,000 pairs breeding. Approaches island late March, leaving in August (*B.B.*, XXVII., pp. 214-223). Rarely seen inshore in any winter month. (One, November 21st, 1932).

LAND-RAIL (*Crex crex*).—One pair bred, 1930. Casually seen April 23rd-May 30th, and one, September 17th, 1928.

WATER-RAIL (*Rallus a. aquaticus*).—One pair bred, 1929 and 1931. Large influx August 10th onwards. Numerous throughout winter and up to early April. Probably bred in 1934, when heard calling and screaming throughout the summer.

MOOR-HEN (*Gallinula ch. chloropus*).—One pair breeds regularly. No migration observed.

NOTES ON FULMAR PETREL COLONIES IN
NORTHUMBERLAND, 1935.

BY

MARY J. LEVETT.

THE return of the Fulmar Petrels (*Fulmarus g. glacialis*) to Bamburgh, Dunstanburgh, and Cullernose Craster, was earlier than the previous year, when they came back to their nesting sites during the second week in January. On Christmas Day, 1934, they were seen at Bamburgh, and on New Year's Day, 1935, two birds appeared at Dunstanburgh, while on January 2nd two more were seen flying round the rocks at Cullernose. This is the earliest arrival on record for Northumberland.

The Bamburgh colony proved disappointing. Six birds were counted there on February 18th, the number later increasing to eleven. On June 3rd an egg was seen on one of the ledges of the Basalt Crag on the Bamburgh links; when visited again on June 18th it was still there, but when I returned on July 12th the egg was gone and the ledges were deserted. Two birds only were seen flying high over the links.

The Dunstanburgh colony was considerably larger than previously. Forty-four birds were counted there on February 8th and appeared to be well established. On May 14th the weather turned suddenly cold with snow and heavy gales and all the birds disappeared and were not seen again until three days later, when the wind dropped. From that time onwards they remained, but it was noted that on windy days they kept well away from the face of the cliff and made no attempts to land on the ledges.

During the first week in June six eggs were counted. Three were on the previous year's nesting sites where chicks had been safely reared and the three others on the west end of the cliff among tufts of sea-thrift and scurvy grass. Five chicks hatched out, four of which got safely away in September. The fifth chick was missed on August 5th and no trace could be found of it on its ledge. Being still in down it was unable to fly. Several of the birds were noticed to be soiled with oil on their breast feathers, and one bird, with only one leg, was frequently seen from May 10th until July 5th. It never succeeded in alighting on the ledges but appeared strong on the wing.

On one occasion I surprised a Fulmar on some low-lying rocks near the sea and as they are unable to rise off a level surface it scrambled clumsily over the rocks until, fearing to

be caught, it vomited up a complete herring, the scales of which were still bright, and thus lightened shuffled on and slipped into the water, making good its escape.

The fishermen tell me that these birds will follow their boats for miles when returning to port and the catch is being gutted, but they will never enter the harbour as the Gulls do.

The colony at Cullernose provided many observations of interest. Of the several birds which laid on the ledges there, one in particular showed great resentment if approached by other birds. It would utter a harsh barking cry and raising itself with extended wings from its egg, would thrust at the intruder. Twice it became so enraged that it vomited a stream of oil from its widely-gaping beak at the offending bird.

When its chick hatched out it was closely-brooded for several weeks and no other birds were allowed to approach.

After prolonged and careful daily watching I was fortunate in seeing the chick fed, and on both occasions this occurred during the morning. It has been thought that these chicks are only fed at night. The parent bird came directly to the ledge and, leaning forward towards the chick, widely opened its beak, the chick reaching up to it with great excitement and, thrusting in its head, took the food offered from the back of the old bird's throat. At intervals the old bird drew back, and, closing its beak, flicked its head from side to side and then leaning forward again offered a further feed.

The chick made a soft quacking note all the time that it was being fed and continued to do so for some minutes after it had been satisfied, while the old bird fondled it with its beak and appeared to preen it. The old bird presently flew off and the chick settled down and went to sleep.

As the chick increased in size and acquired its feathers it was more frequently left alone and occupied itself in picking out the down from between its growing feathers. When the wing quills were showing it would raise itself and spread the wings, flapping vigorously, and later, when fully feathered, would shuffle to the edge of the ledge and peer over, while the parent birds flew back and forward and round about, and from time to time landed on the ledge and called to the chick in deep guttural notes, as if urging it to take wing.

Although I watched for long periods at various times of the day I never saw it make a trial flight, and on arriving early on September 8th I found the young bird gone: it was then eight weeks old.

The majority of the birds of both colonies left at the end of August and none were seen after September 12th.

NOTES

INTER-BREEDING OF CARRION-CROW AND HOODED CROW IN IRELAND.

ON May 9th, 1935, when walking through a small wood on the north side of Dublin Bay, I saw a Hooded Crow (*Corvus c. cornix*), leave its nest, and at the same time caught sight of a second bird which left the top of a nearby tree. The plumage of this second bird appeared to be entirely black, and though not familiar with the Carrion-Crow (*Corvus c. corone*), I was satisfied from the characteristic flight that it was a crow. Having no field glasses with me, and owing to the lateness of the hour, I decided to return the following day. On getting into touch with Mr. G. R. Humphreys, who knows both species well, we arranged to visit the nest together. Arriving at the wood we saw the Hooded Crow leave the nest; this time she was joined by her mate, and both birds flew down to an adjoining field of short grass. Here, while they were on the ground, and later when they flew into a tree, we obtained an excellent view of them through our field-glasses. Identification was now established beyond doubt. The Carrion-Crow, which was apparently the male, uttered its note on several occasions, but the Hooded Crow, contrary to the usual habit of this species, was silent, even when the nest was inspected by me. The following day I got another splendid view of the two birds as they perched within a foot of each other on a hawthorn hedge about twenty-five yards from me. On two subsequent occasions the nest was visited without the Hooded Crow being seen, but the Carrion-Crow was in evidence on both these occasions.

The nest, which was placed in the fork of an ash tree, about forty feet from the ground, contained, when examined on the first visit, three newly-hatched nestlings and one egg on the point of hatching.

LESLIE W. MONTGOMERY.

The Carrion-Crow is very rare in Ireland. Three instances are on record in the nineteenth century of this species mating with the Hooded Crow in cos. Antrim, Cork, and Down, respectively. A further instance from co. Down, supported by the specimen now in the Belfast Municipal Museum, which occurred about 1908, has recently come to light (*Brit. Birds.*, Vol. XXIX., p. 127).

G. R. HUMPHREYS.

COLOUR OF THE BILL OF THE TWITE.

IN my note on the Twite (*antea*, pp. 102-104), I described the bill of birds in summer in the Pennines as pearl grey with a slight tinge of lemon yellow, and stated that the colour was exactly that of the dried fruit of honesty (*Lunaria*).

On December 7th I had the opportunity of handling in the same locality seven Twites, both male and female, and found that their bills, instead of being as in the summer, were now a straw-coloured yellow with a slight greenish tinge. I was able to match the colour with the shell of the yellow form of the snail *Helix nemoralis*.

It is, therefore, clear that while in summer the bills are definitely grey, in winter they are equally definitely yellow.

FRED TAYLOR.

SNOW-BUNTING IN INNER LONDON.

ON November 26th, 1935, at 9.15 a.m., when passing the Round Pond in Kensington Gardens, we noticed a bird, showing a good deal of white, fly across us and settle farther on. We were able to stalk it and get within a few yards of it. It proved to be a Snow-Bunting (*Plectrophenax nivalis*). It was restless and eventually disappeared in a southerly direction.

This is, as far as we know, the first record of this species for Inner London.

G. CARMICHAEL LOW.

E. G. PEDLER.

SNOW-BUNTINGS IN CHESHIRE PLAIN.

ON October 27th, 1935, I saw two Snow-Buntings (*Plectrophenax nivalis*) near Northwich, in the heart of lowland Cheshire. I had never previously met with the bird in the Cheshire Plain away from the coast and moors. These two birds were running and flitting about rough and weedy ground near water, and were very tame. JAMES J. CASH.

SYKES'S WAGTAIL AS A BRITISH BREEDING BIRD.

WITH reference to Mr. E. C. Arnold's paper on Sykes's Wagtail (*antea*, p. 199) in which my name is mentioned, it may, perhaps, assist in clarifying the issue if I give one or two short extracts from my diary (written up the same night), with regard to the appearance of the male Blue-headed Wagtail, whose nest, with young, was found and photographed on June 4th, 1905 (Vol. I., p. 142), and which has hitherto been referred to as *M. j. flava*. The locality, not before particularly indicated, was in the Rother Valley, below the village of Ewhurst, and I first saw the cock bird on the evening of

June 3rd, while watching Yellow Wagtails. The entry is as follows: "While standing by the hut I saw a cock Blue-headed Wagtail, sitting on the barbed wire by the ditch side, and I had him under observation for quite five minutes with my glasses, at a distance of under ten yards. There was a cock Yellow Wagtail on the same wire a little farther on, so I was able to compare the two and there was no possibility of mistake. The head was paler than the ordinary *M. flava*, quite a pale slate grey, with a conspicuous white eyestripe and a patch of lighter grey, almost white, on the ear-coverts. At some little distance the whole head looked almost silver-grey and was a conspicuous contrast to the canary yellow and olive brown of the Yellow Wagtail's head".

The next afternoon (June 4th) I returned to the place with my brother, C. B. Ticehurst, and the late M. J. Nicoll. The relevant part of the narrative reads: "Walked down to the hut and stood under it for some time, examining every Yellow Wagtail, till, after about ten minutes, the cock Blue-headed appeared and sat on the gate about fifteen yards away. We all examined him thoroughly with our glasses for quite ten minutes, and the other two quite confirmed my diagnosis, Nicoll remarking that it was a very pale headed bird and corresponded to the form described as *M. beema* (Sykes); but I am doubtful that the lightness may not be due to wear and that the bird may be only the ordinary *M. flava*".

In spite of the fact that Nicoll always referred afterwards in conversation to this bird as *beema* and insisted that *flava* would get darker on the head with wear, and not lighter (in which I now think he was right), I have always regarded the possibility of true *M. f. beema* nesting in Sussex as so improbable that I have allowed the record to stand hitherto as one of *M. f. flava*. It is clear, I think, that whatever these birds of Mr. Arnold's turn out to be, whether true *beema* or aberrant *flava*, my 1905 bird belongs to the same group.

N. F. TICEHURST.

MR. E. C. ARNOLD'S most interesting note on the nesting of Sykes's Wagtail in Sussex (*antea*, pp. 199-200) prompts me to put on record a nest I found near Rye in May, 1926. The female was much like that of the Yellow Wagtail (*Motacilla f. rayi*) but the cock bird's head was strikingly different. My note at the time runs as follows: "The whole head and nape is pale bluish-grey, but the sides of the head are much paler than the crown and nape, and nearly white. A white

stripe extends behind and above the eye, but not exactly over it, and there is a darker patch through the eye. The rest of the plumage is like that of the Blue-headed Wagtail (*Motacilla f. flava*)". This bird I thought might be Sykes's Wagtail (*Motacilla f. beema*) though the head markings were not exactly right, and at that time there was no proof of its breeding in this country. I consulted Mr. H. F. Witherby and the late Mr. T. A. Coward, both of whom were inclined to put the bird down as a rather curious form of the Blue-headed. With this opinion Mr. R. M. Garnett, who saw the bird with me one day, concurred. But, perhaps rather audaciously, I did not feel quite satisfied with the verdict, and now that Mr. Arnold has found Sykes's Wagtail nesting not so very far away, I am more inclined than before to think that my bird may have been of the same form.

I should add that the nest was built close to a high road and that Whit-week traffic so disturbed the birds (I wondered how the nest escaped being trampled on) that they deserted when only one egg was laid. However, a day or two later they were seen farther from the beaten track and, I hope, met with more success. The egg from the deserted nest I took, and still possess. It is very grey in colour with faint grey mottlings, and one or two black scribbles at the larger end resembling those on the egg of a Sedge-Warbler.

W. WALMESLEY WHITE.

DISTRIBUTION AND SOME HABITS OF WILLOW-TIT IN SUSSEX.

As the distribution of the Willow-Tit (*Parus a. kleinschmidti*) is as yet imperfectly known the following notes may be of interest.

In the last three years I have given much attention to the species in that part of Sussex adjoining Kent, south-east of Tunbridge Wells, and covering about twenty square miles. In this area during the greater part of the year, the bird is widely but thinly distributed, but in the breeding season seems to be confined to certain valleys which contain damp woods. Here in its favourite haunts it may be as numerous as the Marsh-Tit (*Parus p. dresseri*), but as the latter species breeds everywhere, except in the open country, I should not put the Willow-Tit population in the whole area higher than one-tenth of that of the Marsh-Tit. It is a comparatively silent bird and easily overlooked, but in April, even if it is not heard, its presence is usually disclosed by the numerous trial borings it makes before settling down to its nesting site.

The woods here are for the most part well kept and suitable nesting sites scarce, and the bird will not infrequently make use of rotten logs fixed vertically on saplings and small trees in its haunts. I have sometimes wondered whether the scarcity of nesting sites has any connexion with the comparative rarity of the bird.

I watched one bird boring its hole on April 12th, 1935, and following days, and it behaved exactly in the way described by Mr. H. F. Witherby in *British Birds*, Vol. XXVII., p. 320. carefully carrying away nearly all the chips; but another bird, boring at the same time, was more slovenly, dropping most of the chips beneath the hole. Both birds eventually laid eggs.

All the nests I have seen have been very different to any of the scores of Marsh-Tits' nests I have examined, none of which have been of the type described by J. Walpole-Bond in *British Birds*, Vol. XXIV., p. 320, and I think that type must be very rare.

Some eggs are indistinguishable from typical eggs of the Marsh-Tit, the spots being evenly distributed and of a dull liver brown, but most eggs have markings of a decidedly brighter shade of brown, and are more heavily marked, especially at the larger end. The notes and songs have been well described by Messrs. Witherby and Walpole-Bond, but I have noticed that a frequent note in the breeding season is *zurr-zurr*, *zarr-zarr*, or *churr-churr*, much softer than the characteristic *tchay tchay*, and usually prefixed by a sharp little note.

I have heard both birds, when apparently seeking a nesting site, utter continuously a sort of wheezy squeak.

The most frequent song, the plaintive *tchu-tchu*, sometimes, but, in my experience, very rarely, develops into rich Nightingale-like notes. Another not infrequent song is difficult to syllable, but to me sounds like a rapidly repeated *tcheux-a-tcheuxa*, not unlike one of the Coal-Tit's songs.

REGINALD WARE.

[Mr. Ware's notes on the comparative distribution of the two species in this area are most valuable, and it is very desirable to obtain similar data from other parts of the country. We hope that other observers who know the two birds well will send in their observations with a view to the compilation of a survey of the distribution and comparative numbers and habitats of the two species. The published information makes such a survey at the present impossible, but many observers are now well acquainted with the different notes and habits

of the two birds, and have paid considerable attention to them so that it is felt highly necessary to collect all the information possible with a view to arriving at some much more exact statement of the status of both birds than is now available.

That some birds drop the chips at the base of the tree was pointed out by the Rev. F. Jourdain from observations by Mr. Dixon in 1904 (*B.B.*, Vol. VII., p. 141).—H.F.W.]

UNUSUAL NESTING SITE OF RED-BACKED SHRIKE.

ON May 22nd, 1935, at Brandon, on the Norfolk-Suffolk border, I observed a male Red-backed Shrike (*Lanius c. collurio*) carrying nesting material into a pine tree at the road-side at quite a considerable height. For over an hour he made visits every few minutes, but during the whole period the hen was not visible, and was presumably attending to the construction of the nest. Eventually the hen made her appearance, and both birds flew away and were absent twenty minutes. On their return the nest-building continued, but now both birds collected material, whereas previously this duty had been carried out by the male only.

The nest could not be seen from the ground, and on climbing the tree I discovered the partly-built nest in foliage, at a height of fully twenty-five feet, and approximately eight feet from the trunk.

On June 3rd the nest contained broken eggs and was sodden with rain. A new nest was completed and the first egg laid on June 9th. This second nest was normally situated in a thorn bush at a height of five feet, and was only twenty yards distant from the pine tree.

W. H. BRAMWELL.

SONG-THRUSHES FEEDING ON WATER-SNAILS.

DURING the summer of 1935, Song-Thrushes (*Turdus e. ericetorum*) have been in the habit of visiting an artificial pond in the garden of my home at Liverpool and catching any water-snails which came near the side.

The species of snails were *Planorbis corneus* and *Limnea peregra*, and the last-named was the one chiefly taken by the Thrushes, although I found the shells of both broken on the stones around the pond. The snails were only taken in the hot weather when the level of the pond dropped.

J. S. TAYLOR.

BLACKBIRD EATING FLOWERS.

IN July, 1935, I had the same experience as described by Miss R. Baillie (*antea*, p. 178). I had a long border in my garden at Burnage, Didsbury, bedded in rows with yellow

Calceolarias and Lobelia, etc., and I noticed from my window a Blackbird (*Turdus m. merula*) picking at the yellow balls of the Calceolaria and pulling them off the plant. Later on there were two Blackbirds, and I found that they were deliberately eating the flowers so that in three days they had stripped five yards of the border and not a flower was left on any of the plants. The culprits were always hens.

HERBERT MASSEY.

BLACK REDSTART IN WORCESTERSHIRE.

As the Black Redstart (*Phœnicurus o. gibraltariensis*) has, I believe, only once been recorded for Worcestershire, I may note that on November 9th, 1935, I saw a hen, or juvenile, on a farm at Sheriffs Lench, Evesham. I watched the bird for twenty minutes through X8 glasses at thirty yards distance, as it perched, and flew about on heaps of mangolds, and Mr. H. G. Alexander considers my description, written down on the spot, satisfactory.

A. J. HARTHAN.

THE FOOD OF NESTLING SWALLOWS.

FOR the third year in succession specimens of insects brought by adult Swallows (*Hirundo r. rustica*) to their young were obtained during August, 1935, in south Carmarthenshire; the results for 1933 and 1934 were published in Vol. XXVII., p. 231, and Vol. XXVIII., p. 171.

This year's insects have been very kindly identified, as far as their condition permitted, by Dr. John Smart, of the Natural History Museum, S. Kensington, and consist of two orders, chiefly Diptera, but with two species of Hymenoptera, including two "flying ants". Taking all three years together, the food most frequently obtained has been *Dilophus febrilis*, which is a small black fly, about 4 mm. long, with a thin body. Only two or three of the 22 mentioned below are of a size equal to, or greater than, the house-fly (*Musca domestica*).

Family.	Genus.	Species.	
<i>DIPTERA</i> .			
SCIARIDÆ	?		(1)
BIBIONIDÆ	<i>Dilophus</i>	<i>febrilis</i> L.	(10)
	?		(1)
TABANIDÆ	<i>Hæmatopota</i>	<i>pluvialis</i> L.	(1)
PHORIDÆ	?		(1)
OPOMYZIDÆ	<i>Opomyza</i>	<i>germinationis</i> L.	(1)
MUSCIDÆ	<i>Phaonia</i>	<i>erratica</i> Flin.	(1)
	?		(1)
ANTHOMYIDÆ			(2)
<i>HYMENOPTERA</i> .			
CYNIPIDÆ	<i>Eucoileia</i>	?	(1)
FORMICIDÆ	<i>Acanthomyops</i>	<i>umbratus</i> Nytt.	(2)

The figures in brackets denote the number of specimens obtained; *D. febrilis* occurred five times and the Anthomyidæ twice.

On one occasion a somewhat mysterious thing was discovered during a search in a nest for parasites; this was what we should at once call a "pellet", though such things are not usually associated with Swallows. Unfortunately, exact measurements were not taken, but it was roughly spherical in shape—not smooth, but with excrescences—and about 8 mm. in diameter; it was quite dry, and certainly was not a "dropping". Dr. Smart states that the material in the pellet consisted mainly of insect parts, which were unidentifiable owing to their small size. J. F. THOMAS.

RESULTS OF RINGING AND TRAPPING SWALLOWS IN CARMARTHENSHIRE.

ALTHOUGH quite a large number of pairs of Swallows (*Hirundo r. rustica*) were caught in Carmarthenshire in 1934, the results obtained from retrapping their sheds in August, 1935, were not so satisfactory as last year (see Vol. XXVIII., p. 170). This was due partly to an increased number of sheds being unoccupied, partly to the inability to catch the second bird in some sheds.

Sheds 1-12. Not nesting in August.

Sheds 13-15. One bird different (♂), mates not caught.

Shed 16. Male different, mate not caught; former female nesting 50 yards away.

Sheds 17-21. Both birds different.

Shed 22. Both birds different, but former male caught in the same shed on May 17th.

Sheds 23-25. One bird same (♂♂), mates different.

Sheds 26 & 27. Females same, mates not caught.

Shed 28. Same pair.

One interesting recovery, though not connected with the pairs mentioned above, was of a male, ringed in 1931 and caught in the same shed in 1935; as this bird was breeding when first caught, it must on recovery have been at least five years old, and thus is, I believe, the oldest Swallow (in England or Wales) of which there is a definite record, though Dr. A. L. Thomson mentions one of nine years from Scotland (*Problems of Bird Migration*, p. 156).

J. F. THOMAS.

[A five-year-old Swallow has been recorded (Vol. XXVI., p. 215). It was ringed in Surrey on August 14th, 1927, and reported in France in October, 1932.—EDS.]

LESSER SPOTTED WOODPECKER
IN CARNARVONSHIRE.

As it is stated (*antea*, p. 179) that up to now the Lesser Spotted Woodpecker (*Dryobates m. comminutus*) has not been recorded in Carnarvonshire, I must record that while I have not found the bird nesting in that county, I watched one at Gloddaeth, near Llandudno, on November 19th, 1933. There were few leaves on the trees and I had a good view of the bird, being able to note the size, the barred appearance of the back contrasting with the large patches of white in the Great Spotted Woodpecker, and the absence of crimson under tail-coverts.

M. MITCHELL.

KESTREL EATING PREY IN AIR.

THE description of a Hobby eating on the wing (*antea*, p. 179), prompts me to send an account of two Kestrels I saw feeding in a similar manner. On the first occasion the Kestrel (*Falco t. tinnunculus*) was sitting on a shrub about three feet high in North Africa, on the look-out for large ground beetles almost two inches in length. One appearing, the Kestrel flew down to the ground, where it was lost to view for a moment. However, it almost immediately rose into the air and began to circle round at an altitude of some twenty feet, pecking daintily the while at its victim, which it held in its right foot. It raised the latter and bent down its head and so ate with every sign of ease—and leisure—for many minutes were occupied eating that one beetle. Then the Kestrel perched, and after watching for five or six minutes, caught and ate a second beetle exactly as before, and finally flew away. Subsequently I noticed that this Kestrel perched only on its right foot, never putting the other one down. Whether this had anything to do with its manner of feeding, I do not know.

On the second occasion a Kestrel dropped down into heather on Dartmoor quite close to my wife and myself. It crouched for a moment and then, evidently finding itself too near us, rose into the air carrying in its right foot a dark object about the size of a small shrew. Flying slowly forward it raised its foot and, bending down its head, began to pluck and tear at its meal. After a few minutes it returned to the ground and, after a very hard and long stare at us, continued feeding in greater comfort. We could not see what it was eating and our attempts to do so sent it flying up once again. It still held about one-third of its catch in its right foot and very soon

disposed of this in the air. While feeding on the wing, it flew quite slowly forward, only once beating its wings rapidly for a second or two as though about to hover. G. B. GOOCH.

HEN-HARRIER AND SCANDINAVIAN LESSER BLACK-BACKED GULL IN ESSEX.

DURING a walk along the bank of the river, towards the sea, from Burnham-on-Crouch, Essex, on November 8th, 1935, I saw a female Hen-Harrier (*Circus c. cyaneus*) which flew quite close by, and a Scandinavian Lesser Black-backed Gull (*Larus f. fuscus*). The darkness of the back was very striking, and as the bird was flying with Common Gulls I could see it was not a Great Black-backed. I had quite recently seen British Lesser Black-backed Gulls (*L. f. gracillius*) at St. James's Park, and from the embankment by Charing Cross Station.

NORMAN H. JOY.

NUMBERS OF MONTAGU'S HARRIERS BREEDING IN BRITAIN IN 1935.

BY the kindness of various correspondents I am able to give some idea of the numbers of Montagu's Harriers (*Circus pygargus*) breeding in England and Wales in 1935. The figures I am able to give are probably not at all complete, and as it is of considerable interest to arrive at an idea of the present status of the bird, I shall be glad to have details in confidence of any breeding pairs which readers may think have not been included in the figures given below.

YORKSHIRE.—One pair reared two young. The male was wounded but continued to help feed the young.

EASTERN ENGLAND.—At least six pairs bred or attempted to breed and about twelve young were reared. In part of this area the birds unfortunately suffered very severely, and our information is that over twenty were destroyed in the supposed interests of game preservation—a very deplorable state of affairs.

SOUTHERN ENGLAND.—Nine or ten pairs nested. Information as to the number of young reared is incomplete, but four of the pairs reared eleven young. One male was killed, but the female reared two young, and one nest was taken but the bird laid again.

SOUTH WALES.—One pair reared three young.

Thus, besides birds which were destroyed before starting to breed, seventeen or eighteen pairs nested, and although all of these did not rear young there must have been between thirty and forty young ones which flew. H. F. WITHERBY.

EXAMINATION OF PELLETS OF MONTAGU'S HARRIER.

I RECENTLY received from Mr. Witherby some pellets of Montagu Harrier (*Circus pygargus*) for examination, taken from a pair feeding flying young in Yorkshire, on August 14th, 1935. The examination of these pellets revealed the following food :—

No.	Size in Milli- metres.	Weight in grains.	Contents.
1	30 x 20	48	Snake scales, Grouse chick.
2	28 x 17	20	Juvenile of Passerine bird, species uncertain.
3	43 x 18	23	Vole fur.
4	50 x 20	41	Short-tailed field vole ; small Passerine feathers, unidentifiable.
5	30 x 18	23	Juvenile Golden Plover.
6	Fragments.	—	Wings of Song-Thrush ; Meadow-Pipit.

The examination of pellets of Owls and Hawks needs a certain technique and a fairly comprehensive knowledge of plumage of birds and of skulls of mammals. The technique I have evolved may be of use to others and so I give it in full.

A whole pellet probably represents the food taken in the previous 24 hours, as this has been proved to be the case with the Barn-Owl (*Ibis*, 1935, p. 330). It is, therefore, of importance to keep the items of each pellet separate. The pellet is weighed and measured in its two axes. This may or may not be of importance ; the diameter is probably the most important measurement for diagnostic purposes in pellets of unknown origin. It will be noticed that in these pellets the diameter varied from 17 to 20 m.m., whereas in 165 pellets of the Barn-Owl the diameter varied from 21 to 28 m.m.

The pellet is carefully picked to pieces with forceps in the dry state ; all obvious feathers and all bones are laid aside. If the pellet consists entirely of feathers and no fur the next operation can be at once proceeded with. If fur is mixed with feathers, all feathers of any diagnostic value must be picked out. The feathers, in a crumpled and unrecognizable state, are then submerged in boiling water for a quarter of a minute. This straightens out the feathers. The mass is then taken out and pressed several times between blotting paper to remove all moisture possible. It is then put into a

small tin box with two tablespoonfuls of magnesium carbonate and well mixed up and shaken for a minute. The contents are transferred to a bag of fine muslin and beating this well removes the powder and leaves the feathers in a perfect condition. The feathers from each pellet are put in separate numbered envelopes and identification can be proceeded with.

Unlike the Barn-Owl it would appear that Montagu's Harrier not only plumes off most of the diagnostic feathers of its prey but also does not swallow the heads of birds, and but few bones. Therefore identification is not always an easy matter, and in each pellet there were comparatively few feathers to which a certain diagnosis could be given. It was of interest to note that the gizzard of the prey could be recovered from the pellet together with its contents—grit and various seeds.

May I appeal to readers of *British Birds* to send me any pellets of Owls and Hawks, other than Barn-Owls, for investigation?

CLAUD B. TICEHURST.

SPARROW-HAWK ROUNDING-UP MAGPIES.

ON September 1st, 1934, in north-east Surrey, I was watching through glasses, a party of nine Magpies (*Pica p. pica*) gathered round three small hawthorn bushes growing on a hillside about a quarter of a mile distant. Suddenly a Sparrow-Hawk (*Accipiter n. nisus*) glided out of a wood near by and swept down towards them. All the birds hastily took shelter on the sides of, and even under, the bushes, while the Hawk circled slowly round these before alighting on the ground near. During the time it remained on the ground—roughly twenty seconds—some of the Magpies actually hopped down and seemed to be daring one another to sidle closer to the Hawk, but this display of mock courage was promptly terminated by the Hawk chasing them back to the bushes. The Sparrow-Hawk then flew to a tree on the edge of the wood whence it had come.

The performance was repeated several times, the Hawk returning after each attack to its observation tree on the wood-edge.

HUBERT E. POUNDS.

GREAT WHITE HERON IN WILTSHIRE.

ON July 31st, 1935, we had an excellent view of a Great White Heron (*Egretta alba*) at Lindley ponds, Tisbury, Wiltshire.

When first seen the bird was standing at the edge of the water, but got up immediately we appeared in sight. It was

then about forty yards or less away. After circling round once or twice, and affording us an extremely good view of it against a background of trees, it made off, and finally disappeared among some trees half-a-mile or more away.

From the first there was no question about its being a member of the Ardeidæ; and as it was pure white in colour we were at once led to suspect that it might be *E. alba*. In size it appeared to be slightly, but quite definitely, larger than the Common Heron, even allowing for the fact that white birds always appear large. This impression was confirmed, as we saw a Common Heron almost at the same time. Posteriorly, it had a distinctly truncated appearance; an effect which we are inclined to ascribe to the dorsal plumes, which, of course, reach beyond the tail in *E. alba*. We were unable to make certain of the colour of the legs and bill, but as far as we could see the former were dark, while the bill appeared to be light in colour.

In flight the wings seemed to be rather larger in proportion to the size of the bird than in the Common Heron, but this may have been due to the white colour.

Inquiry at a local farm elucidated the fact that a similar bird had been seen on the ponds for two or three days previously, and at one spot where the bird was said to have been seen, there were tracks in the mud, which were obviously those of some kind of Heron. We have visited the locality on several subsequent occasions, but have not seen the bird again.

Careful inquiries among owners of aviaries have resulted in our being unable to hear of anyone who has lost a Great White Heron, and as this bird was extremely shy, we feel justified in assuming that it was a genuine wild bird.

J. BERRY.

C. R. STONOR.

[The Rev. W. Keatinge Clay, of Tuffont Rectory, Wilts., has informed us that he saw from an open window in the early morning of June 5th, a large white Heron on the bank of the river, about 30 yards from the house. The bird flew up and away. Mr. Clay was struck by its apparently entirely pure white plumage, and he remarks that although white birds normally look bigger than dark ones it was a much larger bird than the Common Heron, with which he is quite familiar. He does not, unfortunately, remember the colour of the bill and legs, though he fancies these were dark.]

Mr. W. G. Kemsley informed Dr. N. F. Ticehurst, on returning from a holiday in Wiltshire, that on August 22nd

he saw a bird, which he identified as a Great White Heron, at Tisbury.

So that it would appear that the bird remained in the district for some time. We do not think that the shyness of the bird removes the possibility of its being an escape from captivity, but Mr. D. Seth-Smith informs us that he knows of no one who is likely to have this species in captivity, or at any rate, to allow one to escape. The size of the bird alone makes it impossible that it was one of the Cattle-Egrets liberated at Whipsnade and subsequently reported from many parts of the country.—H.F.W.]

WHOOPER SWAN IN YORKSHIRE IN JUNE.

ON June 17th, 1935, I saw a Whooper (*Cygnus cygnus*) on Hornsea Mere, at close quarters. It remained apart from the Mute Swans and called at intervals. P. F. HOLMES.

BEWICK'S SWANS IN LANCASHIRE.

ON November 16th, 1935, a party of Bewick's Swans (*Cygnus b. bewickii*), consisting of two adults and four juveniles, visited a subsidence pool a few miles to the north of Manchester.

As the water is neither large nor sequestered, it is not surprising that their stay was a short one.

Bewick's Swans now visit the north Cheshire meres with some regularity, generally in January or later, but recent records from south Lancashire are scanty. THOS. BADDELEY.

GARGANEY IN MONMOUTHSHIRE.

As there appear to be no published records of the Garganey (*Anas querquedula*) in Monmouthshire (cf. *antea*, p. 171), I must record that I shot a young male and a young female on August 20th, 1934, at Peterstone Wentloog. These birds are now in the National Museum of Wales. J. G. WILLIAMS.

RUFF IN DENBIGHSHIRE.

A RUFF (*Philomachus pugnax*) appeared at Llandulas on September 7th, 1935. The bird allowed me to approach within a few yards of it and I was able to watch it for as long as I wanted with X6 binoculars, in an excellent light. When purposely flushed it rose silently to a considerable height, but returned to within a few yards of where flushed, and I was able to see and sketch the oval white patch on either side of the tail. The bill appeared black and very slightly decurved.

the legs were decidedly green. The bird was still at Llandulas on the 9th, but on the 11th I failed to find it.

M. MITCHELL.

RUFF AND LITTLE STINT IN GLOUCESTERSHIRE.

ON September 1st, 1935, along the mud-flats between Avonmouth and Severn Beach, Mr. H. W. Neal and the writer watched single examples of the Ruff (*Philomachus pugnax*) and Little Stint (*Calidris minuta*).

There appear to be very few records of either species for the county.

H. H. DAVIS.

RED-NECKED PHALAROPE IN YORKSHIRE.

FROM September 29th to October 5th, 1935, there was a Red-necked Phalarope (*Phalaropus lobatus*) on Hornsea Mere. It seemed to be an adult bird in winter plumage and was generally to be seen feeding at the edge of the mere with a small flock of Dunlins.

P. F. HOLMES.

EASTERN LITTLE BUSTARD IN HAMPSHIRE.

AN example of the Eastern Little Bustard (*Otis tetrax orientalis*) was shot on The Manor Farm, Stockbridge, Hampshire, on December 14th, 1935, during a Partridge drive. The bird has been identified by, and is in the possession of, the Natural History Museum, South Kensington.

K. J. ACTON DAVIS.

[Mr. N. B. Kinnear informs us that the bird weighed 1 lb. 12½ ozs., the expanse of wings was 34⅞ ins., and the stomach contained fragments of a beetle and turnip-tops.—EDS.]

WEIGHT OF HAWFINCH.—M. G. R. Mountfort informs us that the weight of the immature Hawfinch (*C. c. coccothraustes*) to which attention was called in an editorial note (*antea*, p. 148) was not ascertained by him personally, and should not have been included. An adult male subsequently weighed by him was 53.05 gr., which agrees closely with previous records.

IMMIGRATION OF CROSSBILLS.—The following further notes have been received in addition to those published, for which see pp. 112-113, 148-149, 175-176, 214-215.

YORKSHIRE.—One on September 21st, six on November 25th, at Scarborough (W. J. Clarke).

LEICESTERSHIRE.—One on August 31st, at Kegworth (A. Roebuck).

HEREFORDSHIRE.—Two on August 27th at Aymestry (C. Oldham).

SHROPSHIRE.—Four on August 30th at St. Martins, near Oswestry (C. Oldham).

DENBIGHSHIRE.—Many on August 31st, near Llangollen ; several at Chirk (C. Oldham).

BUCKINGHAMSHIRE.—For some days a large flock in mid-September at Ashley Green (C. Oldham).

HERTFORDSHIRE.—One on October 14th at Berkhamsted (C. Oldham).

SURREY.—Five on November 24th near Mickleham (W. K. Robinson). Two on November 9th at Addlestone (P. A. D. Hollom).

SUSSEX.—Eight to ten on November 22nd near Battle (H. Whistler). A number on December 15th near Haslemere, just over the Sussex border (E. M. Nicholson).

LATE NESTING OF HOUSE-SPARROW.—Mr. Herbert Massey, writing from Didsbury, near Manchester, states that on November 1st, 1935, he saw a House-Sparrow (*Passer d. domesticus*) feeding young in his garden. He had often noticed Sparrows taking materials into the ivy during the autumn, but supposed that they were merely preparing winter roosting places, as their nests had been destroyed when the ivy was cut.

LATE STAY OF LESSER WHITETHROAT.—Mr. J. H. Owen writes that he saw a Lesser Whitethroat (*Sylvia c. curruca*) in a roadside hedge near Felsted, Essex, on November 24th, 1935.

DARTFORD WARBLER IN NORTH SURREY.—Mr. R. E. Windsor gives us particulars of a Dartford Warbler (*Sylvia u. dartfordiensis*) which he and a friend observed very closely amongst brambles and birch saplings on Wimbledon Common on October 26th, 1935. The bird appeared to be passing through, and it is worth noting on that account, though the nearest breeding haunts of the bird are not so very distant.

BLACK REDSTART IN SURREY.—Dr. G. Carmichael Low writes to inform us that he saw an adult male Black Redstart (*Phoenicurus o. gibraltariensis*) at Barn Elms on November 30th, 1935. The bird was feeding on some allotments. This is, as far as he knows, a new record for this district.

LATE SWALLOW IN KENT.—Mr. F. E. Randall states (*Times*, Dec. 9th, 1935) that he saw a Swallow (*Hirundo rustica*) at Kingsgate, Broadstairs, Kent, on December 1st, 1935.

LATE SAND-MARTIN IN NORTHUMBERLAND.—Miss M. J. Levett informs us that she saw two Sand-Martins (*Riparia r. riparia*) flying round the Foxton Breakwater, Alnmouth, on November 6th, and one on the 8th, 1935.

LATE STAY OF SWIFTS.—Mr. E. Cohen reports that Swifts (*Apus a. apus*) were to be seen almost daily over the Mersey, at Cheadle, up to September 20th, 1935, and that he saw a single bird there on October 12th; while Mr. P. F. Holmes states that some were seen daily over Hornsea Mere, Yorks, up to October 5th.

HOBBY PASSING FOOD ON THE WING.—With reference to the note on this subject (*antea*, p. 179), Mr. J. E. Roberts writes that when in a hide, close to a nest with young, he observed a Hobby (*Falco s. subbuteo*) fly over calling, and its mate (presumably the female) flew from the vicinity of the nest and rose to meet it. The prey was dropped by the bird above and caught by the other which then flew down back into the trees.

OSPREY IN NORTHUMBERLAND.—Mr. S. E. Cook reports that an Osprey (*Pandion h. haliaetus*) was accidentally shot on the coast of Northumberland on August 23rd, 1935. The bird was sent to him in the flesh and proved to be an immature female. The stomach was empty except for a small fragment of moss about $\frac{3}{8}$ inch in length, and the bird, which was in excellent condition externally and internally, weighed 2 lb. 8 oz.

CARRIER-PIGEON ALIGHTING ON WATER.—In connexion with Miss M. Barclay's note on a Stock-Dove alighting on the water (*antea*, p. 217), Miss J. M. Ferrier informs us that on August 7th, 1935, a Carrier-Pigeon alighted on her motor cruiser on Waxham Dyke, Norfolk. The bird refused to drink from a saucer, and after failing to reach the water from an anchor rope, it flew down from the deck and rested for a second or two on the surface of the water with its wings spread. It fluttered as if frightened and rose from the surface without drinking and settled again on the boat. After a short rest it again flew on to the water with the same result. About half an hour afterwards the bird passed on to another boat.

It may be noted that Wood-Pigeons have not infrequently been seen to alight on the water.

OYSTER-CATCHER'S NEST WITH FIVE EGGS.—Mr. D. J. Robertson informs us that in June, 1934, on the island of Eynhallow, Orkney, he found a nest of an Oyster-Catcher (*Hæmatopus o. occidentalis*) containing five eggs. Three young hatched and the other two eggs were infertile.

BLACK-TAILED GODWITS IN SUSSEX AND DORSET.—Mr. P. A. D. Hollom informs us that he saw in Chichester Harbour, on August 25th, 1935, about twenty Black-tailed Godwits (*Limosa limosa*) in a large mixed flock of waders, chiefly Curlew. Large flocks have also been reported from Poole Harbour, Dorset, by Mr. K. D. Smith, between the end of July and late August, 1935; the maximum numbers were about 70 to 100 on August 24th.

BLACK-TAILED GODWIT IN MONTGOMERY.—Mr. A. W. Boyd writes that he is informed by Mr. S. A. Haworth that a Black-tailed Godwit (*Limosa l. limosa*) was shot on August 13th, 1935, on Eunant Moor, Lake Vyrnwy, Montgomery. The bird was sent to a museum where the identification was confirmed.

ARCTIC TERNS FEEDING ON BISCUIT.—Mr. H. B. Rathborne informs us that in the summer of 1935, when in a ship anchored in Reykjavik harbour at Iceland, about twenty Arctic Terns (*Sterna macrura*) came round the ship and alighted on the water momentarily, and picked up small pieces of biscuits thrown out from the ship.

REVIEW.

TERRITORY. SOME RECENT AMERICAN WORK.

ALL serious students of the territory theory should familiarize themselves with recent American work in this field. In "Territory Reviewed" (*antea*, XXVII., 179-199) we did not do full justice to it owing to difficulty in obtaining the literature. Here we have space only to indicate briefly the contents of the chief papers, which should be read in the original.

We consider the review by Mayr (3)* the most balanced statement that has yet appeared. He first shows that Altum, in *Der Vogel und sein Leben*, as early as 1868, developed in great detail the concept of food territory. This, as Mayr points out, does not diminish the value of Howard's observations, which were the starting point for the study of the bird as an individual. Having discussed the need for a definition of territory, Mayr classifies the type of territory held by birds as follows:

- I. Mating station and feeding ground for young (Buntings, some Warblers):—True territory.
- II. Mating station but not feeding ground.
 - (a) Connected with nest (some Swallows, Leach's Petrel, etc.).
 - (b) Not connected with nest (Ruff, many *Tetraonidæ*, etc.).
- III. Not mating station, but feeding ground (Males and females of certain species between breeding seasons).

* Dr. Mayr has kindly presented some copies of his paper for distribution in England. We have handed these to the British Trust for Ornithology (c/o W. B. Alexander, University Museum, Oxford). They can be obtained on loan by any one interested.

IV. Restricted to nest, no significance with regard to mating or feeding of young.

(a) Colonial species (Sea-birds, some Swallows).

(b) Solitary species (House Sparrow, some Finches).

It seems to us that if observers use this or some similar table in the future, it should remove much of the confusion that has arisen over the term "territory" through Howard applying it as a general law in bird life, when it has very different meanings in different species.

With regard to the food value of territory, Mayr believes that "Territory was originally developed only in connection with the mating, but it has acquired in certain passerine species a secondary significance as the food providing area". This seems to us possible, provided it is realized that the food value of territory has never yet been proved for any species. That the birds in Mayr's group I. feed wholly or mostly in their territories does not necessarily mean that this area is essential for feeding purposes. Having given a few arguments in favour of food territories, Mayr concludes that "The points that were brought up against the food theory of territory, however, seem to carry more conviction".

The study of the Song-Sparrow (*Melospiza melodia*) by Nice (7) is the most detailed study of marked individuals yet attempted. Territory behaviour is described in detail, the development of a melodious juvenile song into a loud and crude advertisement song in the adult, the fighting (often formal), the success in mating and survival, and the subsequent movements of the young and adults in winter and summer. There is far too much to summarize here. Mrs. Nice puts forward as an argument in favour of food territories that they are of value in years of insect shortage, when catastrophe would be unavoidable if the pairs settled too close together. Undoubtedly birds suffer in such years, but it seems to us very doubtful if territorial spacing would prevent this to a sufficient extent to account for the evolution of territory.

The Mitcheners (6) find that the male Mocking-bird (*Mimus polyglottos*) holds and defends a territory the entire year, singing and fighting for it save in the moult. The female holds and defends a territory only in the autumn and winter, either independently or shared with a male. The female sings comparatively little, and only in autumn and early winter. The territories seem correlated with food, to some extent at least, and, unlike in most species, the fighting is continued even when the young are fledged. But there seems to be considerable trespassing, and young birds are unmolested in neighbours' territories, which is hard to explain if the territories have food value. Also the territories appear to be very variable in size.

Welter (10) finds that the Long-billed Marsh Wren (*Telmatodytes palustris*) holds well-defined territories, and is sometimes monogamous, sometimes bigamous. In the latter case, the females occupied opposite ends of the territory and were apparently unaware of the dual relationship.

Miller (4) states that each sex of the Shrike (*Lanius ludovicianus*) holds a separate feeding territory in winter, driving out other birds, and that both sexes sing. The summer territory is described, and the family apparently breaks up at the end of July, when the male has been seen chasing the young. Miller (5) also describes the attempted invasion of a neighbour's territory in the Bullock Oriole (*Icterus bullocki*). Male fought male and female fought female, but no inter-

sexual encounters were observed. Both pairs nested after the readjustment of boundaries. The female has a true territorial song.

Herrick (2) describes the behaviour of the Herring-Gull (*Larus argentatus*) in regard to its vigorously defended "nesting preserve". This species clearly falls in Mayr's group IV. (a).

In addition to these and other life-history studies, there have been some striking experiments by Allen (1) on the Ruffed Grouse (*Bonasa umbellus*) and by Noble and Vogt (9) on a variety of territorial species. The conclusions of the former worker have to be considerably modified in view of the more extensive work of the latter. These writers show that in some species with little sexual dimorphism, such as the House-Wren (*Troglodytes ædon*), the male cannot distinguish between the sexes by their appearance but only by their behaviour when they meet. Some cannot even distinguish their own kind from other similar species. Thus a House-Wren copulated with a stuffed specimen of the very similar Winter-Wren (*Nannus hiemalis*) placed in its territory, though it did not with a specimen of the less similar Long-billed Marsh-Wren. But some species with marked sexual dimorphism could distinguish between the sexes by visual differences only. An adult male Red-winged Blackbird (*Agelaius phæniceus*) fought with and sang at a stuffed male placed in its territory, and copulated with a stuffed female placed beside it. It did this irrespective of the attitude of the stuffed birds. The immature male bird which had never previously bred seemed unable to distinguish between the sexes in this way, and copulated with almost every stuffed bird of either sex or of a similar but different species presented to it. Again, when a stuffed female Yellowthroat (*Geothlypis trichas*) was placed in the territory of a wild male, the latter copulated with it. When a black paper mask (to simulate the male's most prominent character) was added to the same specimen, the male, having commenced to copulate, suddenly broke off and flew away. On its return it attacked the specimen, but after the removal of the mask copulated once more. There is not space here to discuss the conclusions and speculations to which these experiments lead, and further results are awaited with great interest.

In concluding, we may note Noble's discovery (8) that each male Fence Lizard (*Sceloporus undulatus*) keeps to a restricted territory, and that the handsome male adornments are used not to attract the female, but to intimidate rival males when defending the territory. Hence territory is not an exclusively avian phenomenon, and this fact will have to be considered in any subsequent assessment of its significance.

- (1) ALLEN, A. A. (1934) - "Sex Rhythm in the Ruffed Grouse", *Auk*, LI., 180-199.
- (2) HERRICK, F. H. (1935) - *Wild Birds at Home*.
- (3) MAYR, E. (1935) - "Bernard Altum and the Territory Theory", *Proc. Linn. Soc., New York*, 24-38.
- (4) MILLER, A. H. (1931) - "Systematic Revision and Natural History of the American Shrikes (*Lanius*)", *Univ. California Publ. Zool.*, XXXVIII., No. 2, 148-159.
- (5) MILLER, A. H. (1931) - "Notes on the Song and Territorial Habits of Bullock's Oriole", *Wilson Bull.*, XLII., 102-108.

- (6) MITCHENER, H. and J. R.
 (1935) - - - "Mocking-birds, their Territories and Individualities", *Condor*, XXXVII., 97-140.
- (7) NICE, M. M. (1931) *et subs.* Various papers on the Song-Sparrow :
Bird Banding, II., 89-98 and IV., 119-131.
Condor, XXXV., 219-224 and XXXVI., 49-57.
Wilson Bull., XLIII., 91-102, XLV., 51-59, and XLVI., 51-59.
Alauda, VI., 275-297, *Journ. f. Orn.*, LXXXI., 552-595.
Fifty Years' Progress of American Ornithology, 89-100.
- (8) NOBLE, G. K. (1934) - "Experimenting with the Courtship of Lizards", *Natural History (Journ. Amer. Mus. Nat. Hist.)*, XXXIV., 3-15.
- (9) NOBLE, G. K., and W. VOGT (1935) - - "An experimental study of Sex Recognition in Birds", *Auk*, LII., 278-286.
- (10) WELTER, W. A. (1935) - "The Natural History of the Long-billed Marsh Wren", *Wilson Bull.*, XLVII., 3-34.
 D. AND H. L. LACK.

LETTERS.

A CHART OF BIRD-SONG.

To the Editors of BRITISH BIRDS.

SIRS,—May I refer to the "Chart of Bird-Song" by Mr. H. G. Alexander, appearing in your December issue (*antea*, pp. 190-198) ?

The basis of Mr. Alexander's arrangement is classification by groups according to merit and these groups embrace "Song proper" and "Seasonal Calls" without any differentiation.

Apart from differences of opinion, which are inevitable, as regards the merit of the different songs and call notes, no exception could be taken to such a classification had "Seasonal Calls" been kept apart from "Song proper" in a separate group or groups by themselves, rather than incorporate them in the Song Classes.

If, however, it was thought necessary for the purpose of this chart to adopt such a classification, surely, for clarity's sake, it would have been better to have kept the groups separate and distinct rather than to have adopted a general order and merely to preface each individual with its group number. Such an arrangement much detracts from the usefulness of the chart, in that it confuses the main issue, lessens the scope of effective comparison and produces a false sense of proportion.

To take one instance, by way of example: It is somewhat of a rude shock to be confronted in one and the same opening (pp. 196-197) with the relative "song periods" of such birds as the Nightingale and the Tawny Owl. The song of the former is completely eclipsed by that of the Tawny Owl, whose performance is distinctly more imposing on paper than in reality. The "thin dividing line" represented by an

insignificant figure in advance of the name seems quite inadequate to differentiate between the two performances and that sense of proportion, which one looks for in a chart of this nature, is completely lost.

As regards the four Classes enumerated—one must express surprise not to find included, in Class I., such species as the Mistle-Thrush and the Linnet—the former superior in mellowness of tone to the Seng-Thrush, though possibly lacking somewhat in versatility, and the latter, one of our finest resident songsters, both in compass and technique, mellow in tone, sprightly in utterance and without a harsh or discordant note in its vocabulary.

The Wheatear and the Hedge-Sparrow are certainly worthy of a place in Class II., if not also the Stonechat, the Whinchat and the Siskin. If the songs of the Cirl Bunting, the Reed-Bunting and the Tree-Creeper are classed as "of moderate quality" in Class II., surely those of the Meadow-Pipit and the Greenfinch, in Class III., cannot be considered of poorer quality?

But it is with regard to Class IV. that principal exception can be taken. Surely the Red-backed Shrike is worthy of promotion, even though his best efforts are confined to a comparatively short period? The Grey Wagtail and the Yellow Wagtail have, each of them, very definite songs, possibly but little heard, yet, in point of merit, worthy of a place in Class III., while the song of the Martin is little inferior to that of the Swallow, placed in Class II. How the Little Owl finds its way into a class devoted to species with "very feeble or occasional songs or cries" passes all comprehension. This is one of the noisiest and most versatile of its species and its laughing "ku-ku" call is quite as full and tuneful as the neighing note of the Green Woodpecker, placed in Class II.

As regards the unclassified species—the Snipe has a very distinctive "seasonal call", apart from its "drumming" performance, yet the latter is charted in preference to this call. The same remark applies to the Lesser Spotted Woodpecker. It is a little difficult to follow the argument in favour of this departure in a chart dealing with song periods, when non-vocal performances could well have been added as a footnote.

STANLEY MORRIS.

RANScombe, CHICHESTER.

10th December, 1935.

SIRS,—May I make comments on two birds whose notes are included in Mr. H. G. Alexander's interesting chart of bird-song? In my experience the drumming of the Great Spotted Woodpecker may be heard occasionally on fine days in any month of the year except August. I have recorded it in my notes for all eleven months. In 1934 it could be heard in the Cambridge "Backs" many times throughout November and December.

The Little Owl's yapping cries were heard near Girton on all fine evenings from July to mid-September this year. They then became occasional, as they still are (in mid-December).

CAMBRIDGE.

A. HIBBERT-WARE.

PIED WAGTAILS CHASING MARTINS.

To the Editors of BRITISH BIRDS.

SIRS,—In the November issue (*antea*, p. 176) Mr. P. A. Clancey describes Pied Wagtails (*Motacilla a. yarrellii*) depriving Swallows (*Hirundo r. rustica*) of their prey. Several times during the past summer I have watched Pied Wagtails chase and attack Martins

(*Delichon u. urbica*) hawking for flies at Llandulas, Denbighshire. I never saw the prey actually dropped by the Martin but from the frequency of the attacks felt certain that this occurred. On September 11th, 1935, at a time when Swallows and Martins, as well as Pied Wagtails, were particularly numerous at Llandulas, I watched two Pied Wagtails join in chasing and attacking a Martin, the resulting struggle lasted for several seconds. It is probable that Swallows are victimized here as well. I have, however, noted the attacks only on Martins.

M. MITCHELL.

SEA-BIRD MOVEMENTS.

To the Editors of BRITISH BIRDS.

SIRS,—I have read with interest the article by Mr. Trahair Hartley on the flights of Shearwaters, auks and Gannets along the Cornish coast (*antea*, pp. 203-210).

It is my experience also that an off-shore wind decreases and an on-shore wind increases, the numbers of passing sea-birds. On the north-west of Skye the Gannet is the chief traveller.

Birds are seen in largest numbers towards the end of summer, and for one that passes with an off-shore wind a dozen pass with an on-shore wind, and the stronger the wind the more birds.

I have always thought the wind drifts the birds towards the land, and as a rock bound coast throws the wind current *upwards* there is an area of comparative calm a little way off shore and the passing birds take advantage of this—and concentrate along it. SETON GORDON.
ISLE OF SKYE.

DIURNAL MOVEMENTS OF MANX SHEARWATERS NOT MIGRATORY.

To the Editors of BRITISH BIRDS.

SIRS,—On the evening of June 26th, 1924, when I was on Gwbert Head, on the northern side of the Teifi Estuary, with my friend Charles Oldham, we saw, until the light failed, a steady stream of Manx Shearwaters travelling S.W. far out at sea. Not far from there, on Cardigan Island, on the evening of the 27th June, we had a similar experience; but as we had to be in London next day we were unable to follow the matter farther at the time. In the years that have passed since 1924 we have, however, had opportunities of watching the diurnal movements of Manx Shearwaters at different times in spring and summer, and at all hours of the day, particularly at dawn and dusk, from headlands on the coast of Wales between the Worm in Glamorgan and the Anglesey Skerries, on the Cornish peninsula, at the Scillies, on the mail-boat between Holyhead and Kingstown, and on the coasts of Wicklow, Wexford and Waterford.

We hope before long to publish an account of our observations and of the conclusions arising from them. In the meantime, in view of recent articles in *British Birds* touching the movements of Manx Shearwaters, we wish to record our opinion that these diurnal movements have nothing whatever to do with migration, if by that word is understood the journey of a body of birds twice a year between their winter quarters and their breeding place; for though many thousands of Manx Shearwaters may often be involved in the stream on one route alone, they are merely part of the daily passage movement between the birds' nesting quarters and their feeding grounds.

BERTRAM LLOYD.



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SIR WILLIAM BEACH-THOMAS in the *Spectator*.

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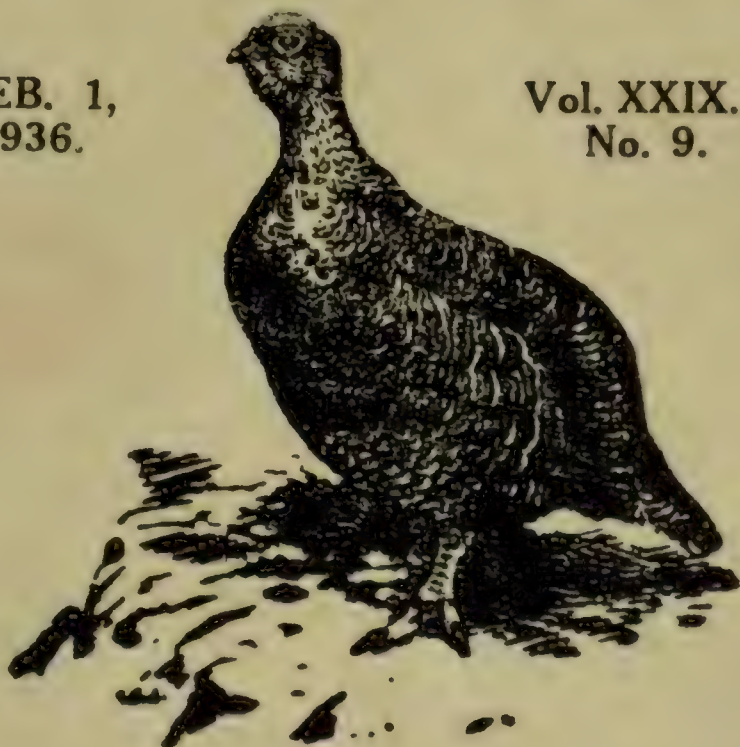
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CONTENTS OF NUMBER 9, VOL. XXIX., FEBRUARY I, 1936.

	PAGE
The Distribution and Numbers of Breeding Gannets. By V. C. Wynne Edwards, R. M. Lockley and H. Morrey Salmon	262
Recovery of Marked Birds	277
Notes :—	
British Trust for Ornithology	284
Snow-Buntings in Cheshire Plain (A. W. Boyd)	286
Golden Oriole seen in Cheshire (R. E. Knowles)	286
Sykes's Wagtail as a British Breeding-Bird (B. B. Rivière)	286
Notes on Grasshopper-Warblers in the New Forest (B. J. Ringrose)	287
Song-Thrush Feeding on Winkles (L. S. V. Venables)	288
Robin Repeatedly Re-trapped (D. Lack)	288
Dark- and Pale-breasted Brent Geese Separating (K. B. Rooke)	289
Gadwall in Merionethshire (E. H. T. Bible)	290
Behaviour of Great Crested Grebe on Ice (B. Lloyd)	290
Black-tailed Godwits in South Devon (Lt.-Col. R. M. Byne)	291
Short Notes :—	
Choughs reported in Orkney, Dorset and Sussex. Immigration of Crossbills. Waxwings in Middlesex and Derbyshire. Subalpine Warbler in Ross-shire. Blackcap Wintering in Somerset. Late Martin in Kent. Lesser Spotted Woodpecker in Carnarvonshire. Late Cuckoo in Argyll. Shag in Inner London	292
Letters :—	
A Chart of Bird-Song (J. J. Cash and H. G. Alexander)	294
Movements of Jays in France (J. Delamain)	297
The Movements of Sea-Birds (H. G. Alexander)	298
Review :—	
<i>A Vertebrate Fauna of Forth.</i> By L. J. Rintoul and E. V. Baxter	299

THE DISTRIBUTION AND NUMBERS OF BREEDING GANNETS (*Sula bassana* L.).

BY

V. C. WYNNE EDWARDS, R. M. LOCKLEY

AND

H. MORREY SALMON.

THE late J. H. Gurney compiled in his book, *The Gannet*, published in 1913, a detailed history of all gannetries of which he could find records, whether they were still occupied or already extinct. He made estimates of the population at that time of each, based in many cases upon personal visits; and though some of the figures he obtained were inevitably less reliable than others, he was finally able to make a first approximation of the entire species at 101,000 birds, excluding all under eight months old (1913, pp. 324-325).

The largest sea-bird in the North Atlantic region would naturally attract unusual attention; but Gurney's census has had particular effect in focussing it upon population studies. Within the last ten years especially many gannetries have been visited by naturalists intent either on revising Gurney's figures or on detecting changes with the passage of time. With one material exception all of them have been re-estimated since 1928, and it seems unlikely that a chance like the present for a second general stocktaking will recur for many years. There are still three colonies about which little or nothing has been learnt since 1913; but populations change and figures soon become out of date, and thus, in view of the large amount of recent information, it seems unwise any longer to defer this summary.

Gurney's list is reproduced in the table below. We follow him in regarding colonies placed on two or more neighbouring islets, as in the St. Kilda group or on the Bird Rocks, as parts of a single unit. Occasionally it is a matter of opinion whether they should be separated or not; the Bull Rock and Little Skellig off the south-west of Ireland, for example, are less than fifteen (nautical) miles apart, but Gurney kept them distinct. On this reckoning Gurney knew of fourteen occupied gannetries, actually situated on twenty rocks or islets.

TABLE OF GANNETRIES IN 1913, AFTER GURNEY.

Colony.				Population (Total Birds).	Year of Estimate.
WALES:					
Grassholm	...	...	...	400	1903
IRELAND:					
Bull Rock	...	...	...	500	(1908)
Little Skellig	...	...	...	16,000	1906

<i>Colony.</i>					<i>Population (Total Birds).</i>	<i>Year of Estimate.</i>
SCOTLAND :						
Ailsa Craig ...	...	...	...	...	6,500	1905
St. Kilda ...	...	...	...	...	30,000	1902
Sulisgeir ...	...	...	...	...	8,000	1887
Sule-skerry Stack ...	...	...	...	...	8,000	(c.1904)
Bass Rock ...	...	...	...	...	6,500	1905
FAEROES :						
Myggenaes ...	...	...	...	...	1,500	(1904)
ICELAND :						
Vestmann Islands ...	...	...	...	...	4,000	1898
Eldey, Geirfugladrangr	...	...	...	...	9,500	—
Grimsey ...	...	...	...	...	100	1903
CANADA :						
Bonaventure ...	...	...	...	...	7,000	1898
Bird Rocks (Combined)	...	...	...	...	3,000	1904

NEW COLONIES.

We now know of nineteen colonies as opposed to the fourteen described by Gurney. None of those in the table has been forsaken during the intervening period, although the Bird Rocks have suffered severe reduction, and the little Grimsey colony, placed under the Arctic Circle, hangs still by the slenderest thread. Of the additional ones now known four are most likely new since 1913; namely, two in Shetland (Hermaness, Unst, and Noss, Bressay), one in the Irish Free State (Great Saltee, co. Wexford), and one on the island of Anticosti in the Gulf of St. Lawrence. The date of establishment of the last is not definitely known, and it may perhaps have existed 25 years ago.

The fifth "new" colony is at Cape St. Mary, Newfoundland. It is the second largest of the four in North America and has been in existence more than fifty years, although unknown to the world till 1918, a record of it published in 1890 having been overlooked.

It is, of course, impossible to be sure that all the existing gannetries have been found, but it is more likely now than it was twenty years ago. Few suitable coasts have been unexplored during this time, and the remaining probability that there might be one somewhere on the little-known outer islands of Newfoundland and southern Labrador, where Funk Island may formerly have been tenanted by Gannets, has lately been shown to be unfounded.

We have not thought it necessary to take up the history of each colony where Gurney left it, a task which would involve nothing but the repetition of what has already been published elsewhere. We have given instead a list of the relevant

literature. The purposes of this paper are to give a review of our present knowledge of the population of Gannets, and to guide future census-takers through some of the difficulties which beset their work.

INTERPRETATION OF FIELD-OBSERVATIONS.

The greatest difficulty in a compilation of this kind is the interpretation of observations, made by different persons, on a uniform plan. Some writers have given the population of the colonies they visited in terms of *birds*, others in terms of *nests*, and still others in terms of *pairs*. None of these three means the same thing. For a colony comprising more than a handful of birds, the only really accurate figure obtainable is the actual number of nests, which bears a precise relation to the breeding population. It is, however, seldom possible to count nests on places frequented by Gannets, either because one cannot get ashore or climb the rocks, or else because the place is so remote and inaccessible that one must hurry to make the most of a fleeting chance.

Under these circumstances what is usually done is to estimate the number of birds present at the time, and then, by making various and not always justifiable allowances for absent birds, pairs at a nest, and non-breeding birds, to derive a figure for the entire population.

It is clear that the reliability of a summary like the present one depends entirely on our interpretation of the material available. Much has been learnt of late about the habits of Gannets during the breeding season, and we have tried to make use of our combined personal experiences in deducing a figure independently for the population of each colony, from the actual field-observations of the various naturalists who have visited them.

Our estimates are in many cases widely at variance with those originally given by other writers. Allowances have sometimes been made by others, for example, for both members of a pair being away from the nest ; but we have found that during incubation and the early stages of fledging that the egg or chick is never left unguarded except upon the greatest provocation. Indeed it is sometimes possible, though inadvisable, actually to touch an adult on watch at the nest before it will take flight. Although on the approach of a boat or of a person in the colony itself the air may be filled with birds which have apparently left their nests to join in the general clamour, closer inspection shows that hardly any or no nests have actually been forsaken, and that these birds which fill

the air were not on active duty at all. Later on, as the chick grows bigger, it may sometimes be left alone; Lockley and Salmon (1934, p. 183) have estimated that less than one in fifty (2 per cent.) of the chicks are temporarily deserted by both parents at any one time during the later stages, up to the time when the dark juvenile plumage appears.

The presence of "extra" or unoccupied birds in a colony demands special attention. It is the rule that one member of a pair only is on duty at any time; but from time to time, at widely separated intervals during the day, the guard is changed, and, during incubation at least, this rite is attended by ceremonies which last some minutes. Often at this stage the relieving bird brings a piece of sea-weed, perhaps symbolic of the nest, and the two pass it to and fro, nodding their heads and bowing and crossing their bills. In a large colony there is always a certain number of relief ceremonies going on, and at these of course both members of the pair are at the nest. Lockley and Salmon (*l.c.*) estimate that approximately 5 per cent. of the nests at any time are attended by both birds.

In addition to these, there are in most colonies a larger or smaller number of entirely unoccupied birds, usually standing in a place apart by themselves, and almost all in adult plumage. In the past these have been regarded as barren or non-breeding birds spending the summer in the colony (*cf.* Gurney, 1913, p. 342); but this belief has no factual basis and now appears to be mistaken.

When ringing Gannets at Grassholm in July, 1934, Lockley found approximately 20 per cent. of the nests in the colony had no eggs or young, and in some cases no lining, but all nests were occupied by adults, and 5 per cent. by pairs of fully adult birds. It is probable that some of these empty nests had once held eggs or young which had been lost subsequently through natural causes, but it is also not improbable that some of the empty nests were occupied by non-breeding adults.

(Empty but occupied nests in any colony cannot easily be distinguished, at a distance, from full nests, and, therefore, all nests that are occupied by adults, whether with eggs or young, or without, are counted as valid for the purpose of this census).

Some non-breeding Gannets, both in adult and immature plumage, pass the entire summer at sea (*c.g.* Wynne-Edwards, 1935, p. 580). A very few immature birds, however, are to be seen in summer at the breeding places. Such dark and

speckled-feathered birds are said occasionally to make nests, sitting for a time as though incubating, although no egg is laid (according to Wm. Duval, guardian at Bonaventure Island). The inference is that even in some adolescent birds breeding instincts are to some extent developed; and probably they are more or less aroused in all birds visiting the breeding places, in contrast to those which have no sexual inclinations and remain at sea throughout the summer.

In the second place, there is a pronounced difference between different gannetries in the ratio of these unoccupied birds present. Grassholm (Salmon and Lockley, 1933, p. 144) and Cape St. Mary (Wynne-Edwards, 1935, p. 589) may be cited as outstanding for the quantity of them to be seen. Grimsey (Roberts, 1934b, p. 101) has more for its size than any other. In contrast, comparatively few are present at the Bass (Gurney, 1913, p. 342) or at Bonaventure Island. Wynne-Edwards (*l.c.*) had doubts that all the unoccupied birds at Cape St. Mary were barren, and suggested that most of them were mates of birds on duty at the nest.

Dr. Harrison F. Lewis (Ottawa) has suggested to us an explanation for this disparity in the numbers of unoccupied birds seen at different colonies. According to his long experience, the chief feeding place of Gannets from Bonaventure is in Mingan Passage and the waters round the West Point of Anticosti, between sixty and a hundred miles from home. Other nearer feeding grounds, for example along the shore of Baie des Chaleurs to the south-west, are less frequented. It must take the birds two or three hours to reach these distant waters and as long to return; nevertheless they have enough time to feed and make such a long journey profitable, otherwise they would not go there in such large numbers. It might be expected, therefore, that under more normal circumstances, for example at Cape St. Mary, where the Gannets are to be seen fishing in considerable numbers between 10 and 20 miles from home (although a few wander at least as far as 80 miles to the west and 40 to the east), they would have a great deal more time to spare. If so, they do not spend it sitting on the water out to sea, for one seldom observes Gannets resting there for longer than a few moments. In brief, it is not unreasonable to suggest that the relative number of unoccupied birds is an index of the proximity of their feeding grounds. The latter vary considerably, of course, with the presence of shoaling fish in the neighbourhood. It is not definitely known how far Gannets will travel on a daily fishing expedition; but it is interesting

to note that a breeding adult ringed at Grassholm on July 17th, 1934, was recovered on May 22nd, 1935, in the following breeding season, 150 miles south-west of the island (Lockley, 1935, p. 75). On the other hand, both at Grassholm (by J. S. Huxley and Lockley) and Bonaventure (on one occasion by Dr. John B. May), Gannets have been seen diving within fifty yards of the islands.

Non-breeding birds are probably present among adults resting off-duty near the colony, and no doubt they form a small but, perhaps, fairly constant proportion at all gannetries.

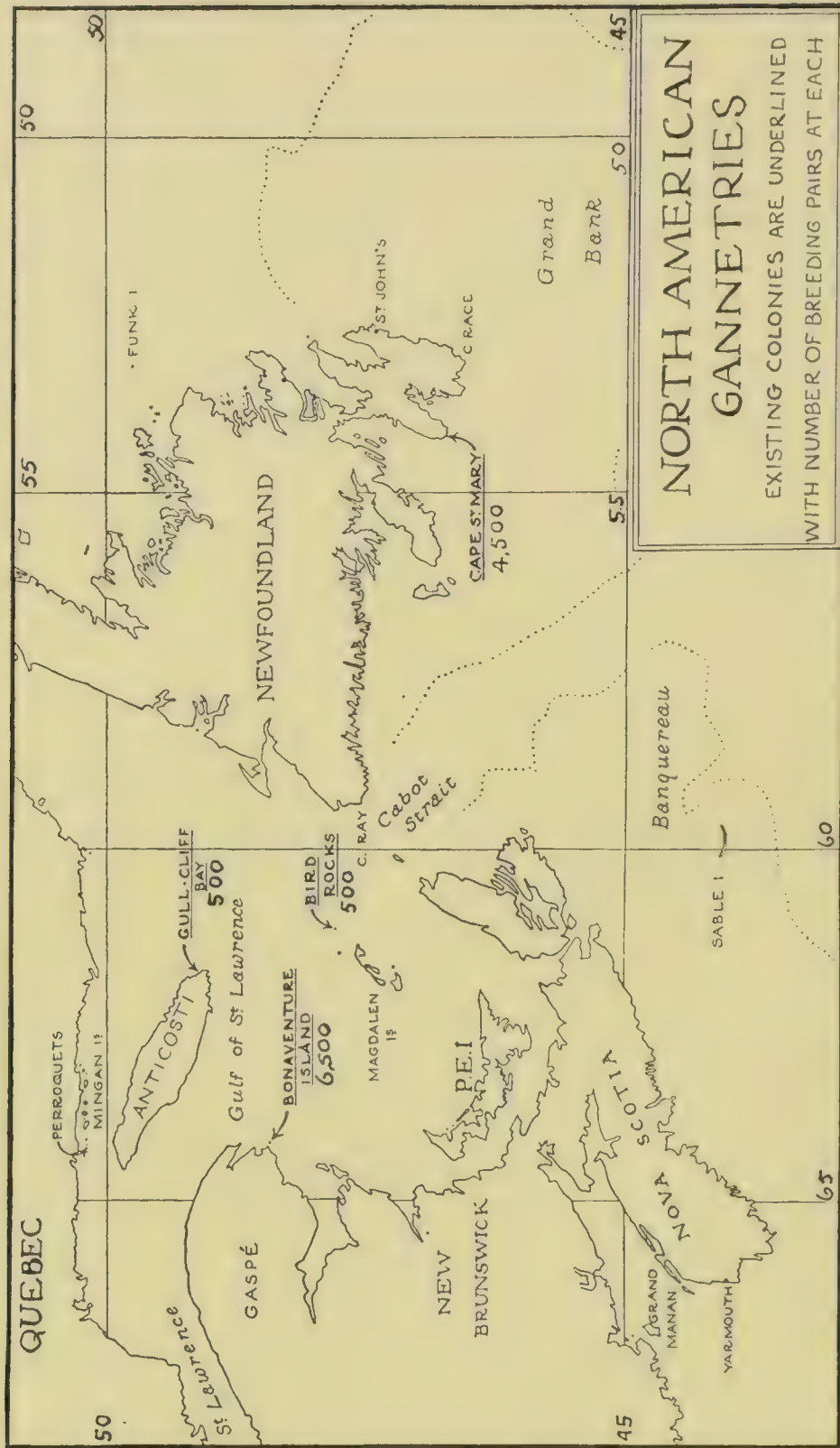
An incident relative to this has lately come to hand. When Roberts, Bertram and Lack visited Grimsey in July, 1933, they counted 21 adults on 21 nests and, besides, 28 "non-breeding" or off-duty birds, only one of which was immature (Roberts, 934b, p. 101). It thus appears that the number of non-breeders in 1933 was at least seven. This is the only instance known to us where the number of unoccupied birds has exceeded the number of nests.

It is interesting to note that in the following year (1934) there was an earthquake there on June 2nd, in which "vast numbers of birds' eggs were destroyed. The Gannet colony in particular suffered". When Holmes and Keith, to whom this latest information is due, visited the island on July 6th, only a single nest was left, others having apparently been destroyed. The maximum number of adults seen (now almost all free from the duties of incubation and thus unoccupied) was 43. One was found dead, a few may have been out fishing, bringing up the total to somewhat more than 44 birds.

THE GENERAL CENSUS.

It appears to us impossible, after considerable discussion, to give a reliable estimate of the total non-breeding population. At the colonies themselves immature birds usually amount to about one per cent. of the adults, and from this it may be inferred that the majority of adolescent birds remain at sea until maturity. The fact that even adult birds may also be seen hundreds of miles from gannetries during the breeding season (*e.g.* at Jan Mayen, off south-west Greenland, Straits of Belle Isle, etc.) suggests that the adolescents are not the only non-breeding wanderers to be reckoned with. We have, therefore, been content to provide figures for the breeding population only.* The wholesale ringing of young Gannets

* It may, however, be stated, for what little it is worth, that the various estimates advanced by one or other of us, but not agreed upon, have put the non-breeders at not less than 20 and not more than 70 per cent. of the number of breeding birds.





on Grassholm in July, 1934, by C. Wontner-Smith and R. M. Lockley, may in time yield mortality figures upon which a reliable estimate of the proportion of adolescent to adult birds may be based. Counts made on that occasion have shown already that not more than 60 per cent. of the potential hatch of young at Grassholm could that year reach the sea.

In the list of gannetries which follows the name of the colony is followed by its latitude and longitude; the estimate of the breeding population is given next in terms of *pairs with nests*; and the year of the latest census or estimate is given at the end of the line.

Pairs with nests.

WALES.

1. Grassholm. 51° 44' N., 5° 30' W. 4,750 1933
Photographic censuses made independently by two observers.
Salmon and Lockley, 1933, p. 142.

IRELAND.

2. Great Saltee Island. 52° 06' N., 6° 38' W. 1 1935
Pollard, 1934a and 1934b; Kennedy, 1934. Pollard informs us that there was only one nest and one pair in 1935.
3. Bull Rock. 51° 35' N., 10° 19' W. 400 1930
B. B. Roberts visited this colony in 1930 and estimated (*in litt.*) the rock to be "nearly full" and a "very considerable increase" over Gurney's figure of 500 birds for 1908. We have therefore felt justified in putting the colony at 400 nests, but it is probably larger.
4. Little Skellig. 51° 46' N., 10° 30' W. 10,000 1930
R. M. Barrington, 1914, p. 154, stated that there had been a marked increase over Gurney's figure of 16,000 birds. B. B. Roberts informs us (*in litt.*) that he visited it in 1930 and found "almost every available ledge occupied". Probably full now almost to capacity, and put down at 10,000 pairs.

SCOTLAND.

5. Bass Rock. 56° 05' N., 2° 40' W. 4,147 1929
Accurate census of nests by J. Bain. Ritchie, 1929.
6. Ailsa Craig. 55° 15' N., 5° 08' W. 7,000 1935
Paton and Pike, 1929, pp. 146-150, estimate 14,000 birds on Ailsa. Gurney's figure of 6,500 they consider much too small; it was deduced from a sample count on a photograph showing some 750-850 birds, said to comprise one-sixth of the total. Taking 750 as the number of birds seen in the photograph, we ourselves should reckon that there were about 725 visible nests, and thus about 4,300 *pairs* in the colony; Gurney's deduction of 6,500 *birds* is thus clearly too low even on his own datum. Paton and Pike state that for every bird seen in the photograph, three

more are hidden in crevices and behind pillars; which would imply that there were actually 13,000 nests even in Gurney's time (1905), and the population is said to have increased since then. How do they arrive at a total of 14,000 birds? If, as we understand, they base their estimate on Gurney's and allow for hidden birds being rather more numerous than those exposed to view, the figure should stand at some 10,000 pairs at least. Salmon spent two days on Ailsa Craig in July, 1935, with Lord Dumfries, but bad weather precluded the possibility of their taking an accurate census as had been planned. He formed the opinion, based on experience elsewhere, that there were approximately 7,500 pairs there. We have been conservative at 7,000 pairs, which is nearly 70 per cent. more than on the Bass. Gurney did not think Ailsa a much larger colony than the Bass (1913, p. 111), and actually the figures he gave for the two were the same (*ibid.*, pp. 324-325).

Pairs with nests.

7. Saint Kilda. 57° 52' N., 8° 30' W. 16,500 1931

Harrisson, 1933, and Harrisson and Lack, 1934, estimated a total of 21,300 birds seen on the three islands used by Gannets, viz. Stac Lee 10,000, Stac an Armin (or "Arnim") 7,000, and Boreray 4,300. If this is approximately correct, and the unoccupied birds were less than 20 per cent. of the total, the breeding population would not be less than 16,500 pairs. This is similar to Dr. Wiglesworth's 1902 figure used by Gurney, namely 15,000 nests, based on a sample count of 1,400 eggs taken from the top of Stac Lee, from which the total was computed with the help of local experience. We notice that whereas the population of Boreray appears to have dropped 50 per cent. since 1902, those of the other islands are said to have greatly increased; which is significant since Stac Lee was considered packed to capacity 30 years ago.

This is, no doubt, by far the largest gannetry extant.

8. Sula Sgeir. 59° 06' N., 6° 10' W. 5,000 1933

Harrisson, 1933, gives "a rough long-distance estimate of 9,000 birds" in August, 1931; Stewart, 1934, p. 44, however, considers that Harrisson's estimate should not be relied upon. He mentions 6,500, without putting the figure forward as an estimate, adding that Gurney's figure (8,000) is well in excess of the present Gannet population. 6,500 birds would probably represent a breeding population of between five and six thousand pairs, depending on the number of unoccupied birds present. Stewart also states (*l.c.*) that in 1933, 2,000 young Gannets were killed for food here by men from Lewis. Since Wontner-Smith and Lockley found it possible to catch and ring nestlings from only 40 per cent. of the total number of nests on Grassholm, it is likely that it would be possible to kill only young Gannets from 40 per cent. of the nests on Sula Sgeir. The nestlings at a suitable age for ringing would only be a little younger than those of an age suitable for killing. Furthermore, the ground at Grassholm is only slightly more accessible for the purpose of catching Gannets than at Sula Sgeir, conditions at both being similar. It would be reasonable, therefore, to consider 2,000 birds as representing 40 per cent. of the occupied nests, making a total of 5,000 occupied nests on Sula Sgeir.

Pairs with nests.

9. **Sule Stack.** 59° 02' N., 4° 30' W. 4,000 1914
 Gurney, 1914, p. 633, gives an estimate made by the Duchess of Bedford in 1914 of "5,000". The Duchess herself says, 1914, p. 176: "I counted the birds before many of them rose on a portion of the rock which was most thickly occupied, and my opinion is that there were about 5,000 at the time of my visit. If anything, this may be a little under the mark, but I should certainly say there were less than 6,000". Those birds which rose into the air were, of course, off duty, and may have numbered as many as 1,000, a figure based partly upon what may be seen in the photographs. The breeding population should therefore be put down, conservatively, at 4,000 pairs.

SHETLAND ISLES.

10. **Noss.** 60° 09' N., 1° 02' W. 800 1935
 Macpherson, 1933 (1 pair in 1914); Tulloch, 1915 (4); Greatorex, 1919 (5); Meade-Waldo, 1920 (10 pairs). Increasing rapidly; L. S. V. Venables visited Noss in 1934 and made a rough estimate of approximately 800 pairs. In the same year the watcher, J. W. Jamieson, however, put them down at 300 nests. A. Holte Macpherson, who visited the colony, 1931 to 1933, and found the nests difficult to count owing to their situation on the 600-foot cliff, considers this figure too low. We have, therefore, put it down at 800 nests, as an increase is again reported in 1935. Now breeding both on the Noup and the mainland of Noss.
11. **Hermaness, Unst.** 60° 51' N., 0° 54' W. 1,000 1935
 Meade-Waldo, 1920, estimated about 100 pairs on the Rumblings, and fewer on Humla Stack. Actually it appears there are no Gannets on the Rumblings, but on the stack (Vesta Skerry) close to it. A. Holte Macpherson, who last visited Unst in 1933, found five colonies near each other. The watcher, Lawrence Bruce, gives the following figures for these five sites, 1934: 200 nests at Vesta Skerry; 200 at Humla Houl (not Humla Stack) and Burra Stack; 200 at Neepna Stack and (since 1932) on the cliff of Neepna opposite. These figures Macpherson considers too low. Griffith, 1929, calculated *over* 1,000 pairs in this group in 1928. The watcher reports a further increase in 1935, and we feel justified in putting the total for 1935 at 1,000 nests, roughly divided 200 to each colony. There are no Gannets on Muckle Flugga as stated by Ritchie, 1929, p. 131.

FAEROES.

12. **Myggenaes Holm.** 62° 08' N., 7° 41' W. 750 1928
 and 1935
 Apparently no change since Gurney, 1913. More recent photographs, but no estimate, appeared in Hagerup, 1926. Miss C. M. Acland (*in litt.*) visited and photographed the colony in 1928, estimating it at 750 pairs. R. M. Lockley passed close to the colony in June, 1935, and estimated that not more than 1,000 birds were present.
 The two stacks west of the Holm are used by Gannets, possibly mainly as standing grounds for unoccupied birds, but Miss Acland's photographs show apparently nesting birds also.

Pairs with nests.

ICELAND.

13. **Westmann Islands.** 63° 23' N., 20° 20' W. 4,000 1935
Four islands tenanted. The estimates of Roberts, 1934a, pp. 245-248, and 1934b, p. 103, here and at Eldey, have been corrected by Lockley and Salmon, 1934, p. 183. Lockley visited two of these colonies in June, 1935, and found 317 nests at Brandur and estimated 2,600 nests at Hellisey. Allowing 5 per cent. off Roberts' figures of 1,020 birds at Sulnasker and 200 at Geldunger, we get a total for the four colonies of 4,000 nests.
14. **Eldey.** 63° 44' N., 22° 57' W. 8,000 1934
Roberts', 1934b, p. 103, estimate is based on area alone. His brother, who made it, calculated that there were 14,000 birds on the island, which would, of course, imply something of that order of nests. But by comparison with Grassholm the three acres of Eldey seem unlikely to support more than seven to eight thousand nests, however closely packed.
15. **Grimsey.** 66° 32' N., 18° 00' W. 21 1933
Roberts, 1934b, p. 101. Owing to an earthquake on June 2nd, 1934, Holmes and Keith, 1935, p. 319, found only one nest in July, 1934.

PROVINCE OF QUEBEC.

16. **Anticosti** 49° 11' N., 61° 45' W. 500 1928
(Gull-cliff Bay).
Taverner, 1929, p. 78. Estimate of number of nests.
17. **Bonaventure**
Island. 48° 29' N., 64° 09' W. 6,500 1934
Reliable estimate based on annual computations of number of nests for several years past, by H. F. Lewis. The gannetry is well described by Taverner, 1918.
18. **Bird Rocks.** 47° 51' N., 61° 08' W. 500 1932
Estimate by F. L. Prest of Grosse Isle. Wynne-Edwards, 1935, p. 585. A. O. Gross, who passed the Rocks in 1934, informs us that he thinks this figure considerably too low.

NEWFOUNDLAND.

19. **Cape St. Mary.** 46° 49' N., 54° 11' W. 4,500 1934
Wynne-Edwards, 1935, p. 588. Estimate of number of incubating birds by observation and from photographs, with allowance for unoccupied birds, of which a separate estimate was made.

SUMMARY.

The sum of the breeding birds at the nineteen colonies or groups of colonies now known is approximately 78,000 pairs (156,000 birds), with a probable error of the order of $\pm 10,000$ pairs, distributed as follows:—

British Isles	...	...	about 53,500 pairs.
Faeroes and Iceland	...	...	about 12,500 pairs.
Canada and Newfoundland	...	...	about 12,000 pairs.

There has thus been a great apparent increase in the population during the last twenty to thirty years. Gurney's total of 101,000 birds included all except the season's hatch, but we should add to it between five and seven thousand birds on account of the unknown American stations. (No allowance was made by him for non-breeding birds absent from the colonies in summer; thus for comparison we are not obliged to estimate these either). Our estimate, therefore, exceeds Gurney's by at least 48,000 birds, even discounting non-breeders present at the gannetries.

Although the earlier censuses available in 1913 were even less accurate than those we have used, there seems little doubt that a real increase has occurred. Gurney's figures we know to have been wide of the mark in a number of cases, especially those based on his personal visits to gannetries; these without exception were too low, sometimes (*e.g.* Ailsa Craig) by as much as 30 or even 50 per cent. Against this, however, are widespread reports of increase, especially marked at Grassholm, Bonaventure Island, and Cape St. Mary; and the establishment of three, if not four, new colonies, albeit small and in one case, perhaps, only temporary (Great Saltee), points also towards progress in numbers. There have also been abortive attempts by isolated pairs to breed at three other sites at least in the British Isles. In 1922 a pair built a nest at Lundy Island, where the oldest known colony in the world became extinct in 1907 (Loyd, 1922, p. 154). In the same year a pair built on the Isle of May, in the Firth of Forth (Baxter and Rintoul, 1923, p. 73), and from 1924 to 1928 a pair built on Bempton Cliffs, Yorkshire (*Naturalist*, 1925, p. 26, and 1929, p. 81). Another pair is reported to us to have attempted to nest in south-east Scotland. The only colony known to have dwindled seriously is Bird Rocks (Grimsey being too small to carry much weight in the total).

This increase is almost certainly due in part to concerted efforts on both sides of the Atlantic to protect Gannets, and to the fact that fishermen, except at the Iceland and Sule Sgeir colonies, no longer use eggs and young Gannets for food and bait. Modern transport facilities have opened up other sources to them which involve neither breaking the law nor the risks and effort which attended their former depredations. In part it may be due also to a natural rise of a periodic kind, which will fail before long to maintain its present pace.

More definite comparisons between this and Gurney's census we do not believe are justified. This census should

be regarded rather as a second approximation to the number of breeding Gannets, to which Gurney's was the first.

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RECOVERY OF MARKED BIRDS.

As it is necessary still further to restrict the number of recoveries published, this list omits both nestlings and adults recovered where ringed (except in cases of exceptional interest), of the following species:—Starling, Greenfinch, Chaffinch, Yellow Bunting, Song-Thrush, Blackbird, Robin and Hedge-Sparrow. "Where ringed" is defined as within three miles of the locality recorded by the ringer on the schedule.

Although they are excluded from this printed list it is still of great importance that all such recoveries shall be notified as before, in order that full records may be kept for the purpose of special studies.

No.	Ringed.	Recovered.
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Jackdaw (*Colæus m. spermologus*).

RINGED AS FULL-GROWN.

RT.5746	Shipley (Yorks.), 14.5.33, by C. Wontner-Smith.	Where ringed, 21.5.34; 18.5.35, by ringer.
RV.1989	Ditto 22.5.34	Ditto 15.4.35.
RT.6120	Malvern (Wores.), 17.7.34, by P. Morshead.	Ledbury (Hereford.),—5.35, by M. Biddulph.

Magpie (*Pica p. pica*).

RV.2034	Shipley (Yorks.), 10.6.34, young, by C. Wontner-Smith.	Where ringed, 27.4.35, by ringer.
RV.2247	Church Stretton (Salop), 27.5.34, young, by W. A. Cadman.	Where ringed, 19.5.35, by H. Thornton.

Starling (*Sturnus v. vulgaris*).

RINGED AS NESTLINGS.

ZJ.323	Hutton John (Cumb.), 19.5.35, by H. J. Moon.	Caldbeck (Cumb.), 22.7.35, by J. Young.
ZM.662	Glenridding (Westmor.), 28.6.35, by H. J. Moon.	St. Mary's Loch (Selkirk), 10.10.35, by W. Barrie.
GA.628	Shipley (Yorks.), 20.5.34, by C. Wontner-Smith.	Birmingham (Warwick.), 12.11.35, by Miss Smith.

RINGED AS FULL-GROWN.

GS.498	Kilbarchan (Renfrew.), 5.2.35, by F. Ramsay.	Auchterderran (Fife), 23.10.35, by C. Justice.
GS.796	Wilmslow (Ches.), 29.1.35, by E. Cohen.	Leyland (Lancs.), 7.12.35, by J. Pomfret.
S.9037	Ditto 21.2.32	Nottingham, 26.5.35, by W. Deeming.
GK.366	Great Budworth (Ches.), 7.11.34, by A. W. Boyd.	Aarhus, Jylland, Denmark, 8.7.35, by N. Jensen.
WF.60	Ditto 28.1.33	Kappeln, Schleswig-Holstein, 6.7.35, by E. de Cuveland.
Heligoland 734072 (cf. <i>ante</i> , p. 132).		
(26.10.32		
YF.647	Ditto 15.12.33	Plumley (Ches.), 20.12.35, by H. Booth.

No. Ringed. Recovered.

Starling (*continued*).

RINGED AS FULL-GROWN (*continued*).

BF.671	Malvern (Worcs.), 9.7.33, by P. Morshead.	Upton-on-Severn (Worcs.), 19.5.35, by C. Barry.
FT.351	Ditto	12.4.34 Kidderminster (Worcs.), —.4.35, by H. Silcock.
BF.703	Ditto	13.7.33 Alcester (Warwick.), 2.10.35, by M. Walker.
FT.194	Ditto	21.3.34 Schlei, Schleswig-Holstein, —.7.35, by J. Hederich.
FL.669	Evesham (Worcs.), 7.12.33, by A. J. Harthan.	Bromsgrove (Worcs.), —.7.34, by R. Dixon.
FL.518	Cirencester (Glos.), 4.3.34, by R. Bickersteth.	Tamworth (Staffs.), 25.11.35, by A. Spencer.
GR.627	Oxford, 5.11.34, for Oxford Orn. Soc.	Malmö, Sweden, 27.8.35, by N. Norehn.
GR.555	Ditto	21.11.34 Pyritz, Pomerania, 10.7.35, by Vogelwarte, Rossitten.
P.3894	Ditto	22.11.31 Deutsch-Eylau, W. Prussia, 21.10.35, by Vogelwarte, Rossitten.
AR.3713	Bluntisham (Hunts.), 7.2.34, by E. Peake.	Hemingford Grey (Hunts.), 13.10.35, by T. Brooks.
TF.486	Frinton (Essex), 15.12.33, for Oxford Orn. Soc.	Rotterdam, Holland, 10.8.35, by A. den Boer.
FN.801	Friern Barnet, London, 20.1.34, for Lond. N.H.S.	Epping (Essex), 30.5.35, by C. Nicholls.
GM.834	Winchelsea (Sussex), 1.9.34, by P. Hollom.	Dover (Kent), 22.5.35, by A. Gavin.
R.8841	Branscombe (Devon.), 4.1.31, by P. Morshead.	Pyritz, Pomerania, Summer, 1935, by Vogelwarte, Rossitten.

Greenfinch (*Chloris ch. chloris*).

GH.732	Stanway (Glos.), 8.1.35, ad., by G. Charteris.	Wakefield (Yorks.), 6.7.35, by E. Hutchinson.
ZA.205	Bluntisham (Hunts.), 1.3.35, ad., by E. Peake.	Sale (Ches.), 24.6.35, by H. Walkden.

Linnet (*Carduelis c. cannabina*).

RINGED AS NESTLINGS.

LM.913	Stanway (Glos.), 22.6.35, by G. Charteris.	Arès (Gironde), France, 12.10.35, by R. Loo.
LP.952	Reading (Berks.), 5.6.35, for Leighton Park Sch.	Portugalete (Vizcaya), Spain, 3.11.35, by G. Marina.

RINGED AS FULL-GROWN.

LG.81	Malvern (Worcs.), 31.3.35, by P. Morshead.	Nantes (Loire Inf.), France, 18.12.35, by E. Guibreteau.
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Bullfinch (*Pyrrhula p. nesa*).

MS.834	Combe (Berks.), 10.7.34, ad., by G. Brown.	Where ringed, 19.7.35, by ringer.
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- | No. | <i>Ringed.</i> | <i>Recovered.</i> |
|---|---|--|
| Chaffinch (<i>Fringilla c. caelebs</i>). | | |
| RINGED AS NESTLING. | | |
| N.2184 | Tetbury (Glos.), 30.5.35, for
Westonbirt Sch. | Chippenham (Wilts.),
15.7.35, by E. Portal. |
| RINGED AS FULL GROWN. | | |
| LJ.532 | Stanway (Glos.), 29.1.35, by
G. Charteris. | Deynze (E. Flanders), Bel-
gium, —.10.35, by G.
Vantroys. |
| MM.982 | Moreton - in - Marsh (Glos.),
29.12.34, by G. Charteris. | Eecloo (E. Flanders), Bel-
gium, 25.10.35, by R.
Bottelberghe. |
| GN.236 | Branscombe (Devon), 22.12.34,
by P. Morshead. | Kinver (Staffs.), —.6.35,
by G. Perry. |
| Meadow-Pipit (<i>Anthus pratensis</i>). | | |
| LC.736 | Edinburgh, 19.5.35, young by
W. Serle and D. Bryson. | Andernos-les-Bains
(Gironde), France, 2.10.35,
by <i>Chasseur Francais</i> . |
| MX.836 | Hutton John (Cumb.), 27.5.35,
young by H. J. Moon. | Biarritz (Basses Pyrénées),
France, —.10.35, by A.
Bombondiac. |
| LK.574 | Salthouse (Norfolk), 15.5.35,
ad., by R. M. Garnett. | Setubal, Portugal, 9.12.35,
by P. Machado. |
| Rock Pipit (<i>Anthus s. petrosus</i>). | | |
| LX.589 | Isle of May, Scotland, 22.8.35,
ad., for Midlothian O.C. | Elie (Fife.), 1.12.35, by
J. Major. |
| Pied Wagtail (<i>Motacilla a. yarrellii</i>). | | |
| F.2000 | Penrith (Cumb.), —.5.30,
young, by H. J. Moon. | Where ringed 4.9.35, by
F. Tuer. |
| LB.507 | Kirkby Lonsdale (Westmor.),
27.5.35, young, by H. J.
Moon. | Longtown (Cumb.), 28.8.35,
by T. Gibson. |
| Blue Tit (<i>Parus c. obscurus</i>). | | |
| LH.303 | Barnard Castle (Durham)
23.1.35, ad., for Barnard Cas.
Sch. | Felton (Northumb.), 31.5.35,
by J. Brown (53 miles
north). |
| Willow-Warbler (<i>Phylloscopus t. trochilus</i>). | | |
| MX.234 | Rudford (Glos.), 6.6.34, ad.,
by M. Philips Price. | Where ringed, 24.5.35, by
ringer. |
| Mistle-Thrush (<i>Turdus v. viscivorus</i>). | | |
| RINGED AS NESTLINGS. | | |
| AP.6901 | Shipley (Yorks.), 19.4.34, by
C. Wontner-Smith. | Calverley (Yorks.), 26.10.35,
by W. Smith. |
| AR.7865 | Beckley (Sussex.), 17.4.35, by
J. F. D. Scott. | Lille (Nord), France,
24.11.35, by E. Brienne. |
| RINGED AS FULL-GROWN. | | |
| AR.1036 | Wilmslow (Ches.), 14.3.34, by
E. Cohen. | Where ringed 10.4.35, by
ringer. |
| AP.5601 | Birmingham (Warwick),
18.2.33, by W. E. Kenrick. | Ditto 7.1.35. |
| P.5904 | Wallington (Surrey), 7.4.31, by
T. Wallace. | Ditto 10.7.35,
by — Mansfield. |

No.	Ringed.	Recovered.
Song-Thrush (<i>Turdus e. ericetorum</i>).		
RINGED AS NESTLINGS.		
FF.234	Glenorchard (Stirling.), 14.6.33, by J. Bartholomew.	Campbeltown (Argyll), 24.12.35, by M. McDonald.
GK.617	Edinburgh, 17.4.35, by W. Serle and D. Bryson.	Innerwick (E. Lothian), 24.8.35, by W. Aitchison.
GM.261	Lowther (Cumb.), 5.5.35, by H. J. Moon.	Kilfree (Sligo), 25.10.35, by P. O'Grady.
AR.6532	Ullswater (Cumb.), 16.5.34, by H. J. Moon.	Ballydehob (Cork), 26.12.35, by S. Dukelow.
GG.791	Carperby (Yorks.), 10.6.34, for Bootham Sch.	Fleetwood (Lancs.), Summer 1935, by A. Johnson.
ZJ.964	Rugby (Warwick.), 20.5.35, for Rugby Sch.	Meir (Staffs.), 11.10.35, by F. Lindop.
EF.408	St. Ives (Hunts.), 23.5.33, by C. S. Clarke.	Melbourne (Cambs.), —.8.35, by F. Weldon.
ZC.536	Bealings (Suffolk.), 16.5.35, by A. Mayall.	Wymondham (Norfolk), 11.8.35, by G. Kidd.
FK.812	Addlestone (Surrey), 18.4.34, by P. Hollom.	Chiswick, London, 27.7.35, by Mrs. Colebrook.
GR.241	Ditto 24.4.35	Shefford (Beds.), 22.8.35, by G. Papworth.

Blackbird (*Turdus m. merula*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

GK.930	Pathhead (Midlothian), 17.6.35, by Mrs. Greenlees.	Pencaitland (E. Lothian), 30.8.35, by H. Mortimer-Batten.
ZL.685	Hackthorpe (Cumb.), 5.6.35, by H. J. Moon.	Bassenthwaite (Cumb.), —.10.35, by T. Walker.
ZK.192	Mobberley (Ches.), 22.5.35, by E. Cohen.	Market Drayton (Salop), 23.12.35, by S. Powis.
ZH.573	Workop (Notts.), 18.5.35, by C. Wontner-Smith.	Stockport (Ches.), 2.9.35, by F. Hallworth.
ZB.186	Stanway (Glos.), 22.5.35, by G. Charteris.	Broadway (Worcs.), 9.7.35, by W. Knight.
ZD.454	Whitwell (Herts.), 4.5.35, for Rugby Sch.	Milden (Suffolk), 17.7.35, by Mrs. Jervase-Hatt.
FJ.107	Saxlingham Nethergate (Norfolk), 21.4.35, by Mrs. Wilson.	Scole (Norfolk), 18.10.35, by C. Buggs.

(b) RECOVERED WHERE RINGED.

W.8974	Bristol (Glos.), 8.5.27, for	Clifton Coll. Sci. Soc. 3.6.35.
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RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

GR.981	Isle of May, Scotland, 24.4.35, for I. of May B. O.	Leeuwarden (Friesland), Holland, 13.11.35, by G. Junge.
EF.653	Kilbarchan (Renfrew.), 7.4.34, by F. Ramsay.	Blackridge (W. Lothian), 23.9.35, by H. Aitken.
FB.459	York, 8.3.34, for Bootham Sch.	West Heslerton (Yorks.), 28.8.35, by A. Lamb.

(d) RECOVERED WHERE RINGED.

X.9955	Prestbury (Ches.), 3.1.28, by R. M. Garnett.	29.12.28 ; 26.7.35.
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No.	Ringed.	Recovered.
Whinchat (<i>Saxicola r. rubetra</i>).		
L.B.699	Pooley Bridge (Cumb.), 15.6.35, young, by H. J. Moon.	Cénac (Gironde), France, —.9.35, by E. Traquereau.
LR.868	Cowan Bridge (Westmor.), 21.6.35, young, by H. J. Moon.	Aubie - Espessas (Gironde), France, 19.9.35.

Redstart (<i>Phœnicurus ph. phœnicurus</i>).		
KB.129	Cornbury (Oxon.), 23.6.35, young, for Oxford Orn. Soc.	Asthall (Oxon.), 6.8.35, by A. Tayler.

Hedge-Sparrow (<i>Prunella m. occidentalis</i>).		
G.9444	Kilmacolm (Renfrew.), 13.5.29, young, by Mr. and Mrs. Blyth.	Where ringed, 30.6.35, by J. Broadfoot.
MH.448	Skokholm (Pem.), 8.10.33, ad., by R. M. Lockley.	Where ringed, 31.10.33 ; 1.11.33 ; 22.4.35.
MH.449	Ditto 8.10.33	Ditto 29.8.35.

Swallow (*Hirundo r. rustica*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

NW.755	Laugharne (Carms.), 18.8.33, by J. F. Thomas.	Carteret (Manche), France, Summer 1935, by R. Duval.
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(b) RECOVERED WHERE RINGED.

MD.159	Huddersfield (Yorks.), 7.7.34, by J. Ellis.	6.7.35.
MT.185	Alderley Edge (Ches.), 17.7.34, by E. Cohen.	5.8.35.
MA.886	Foss Bridge, (Glos.), 13.6.33, for L.N.H.S.	—.7.35.
MS.752	Capel (Surrey), 29.6.34, by W. A. Cadman.	15.7.35.
MP.109	Cley (Norfolk), 6.7.34, by R. M. Garnett.	29.5.35.
LD.305	West Ashley (I. of W.), 12.8.34, by A. Mayall.	30.5.35.
NW.771	Laugharne (Carms.), 21.8.33, by J. F. Thomas.	19.8.35.
MN.603	Ditto 4.8.34.	10.8.35.
MP.430	Ditto 8.8.34.	30.7.35.
MP.555	Ditto 18.8.34.	23.8.35.
LG.692	Ditto 24.8.34.	27.8.35.

RINGED AS FULL-GROWN.

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Fulbourne, Cambs. (L.N.H.S.).			NW.632	3.8.33	3.8.34 ;
MA.926	22.5.34	5.6.35			[1.8.35
MA.936	22.5.34	5.6.35	NW.747	16.8.33	4.8.34 ;
(Mates in both years).					[1.8.35
Capel, Surrey (W. A. Cadman).			NW.905	3.8.34	1.8.35
NJ.253	21.7.33	15.7.35	MN.651	6.8.34	21.8.35
NJ.254	21.7.33	15.7.35	MP.449	12.8.34	17.5.35
Laugharne (J. F. Thomas).			MP.495	16.8.34	7.8.35
L.5005	8.8.31	7.8.35	LG.743	29.8.34	19.8.35
N.4578	8.8.32	7.8.33 ;	LG.737	27.8.34	16.8.35
	[11.8.34 ;	1.8.35	LG.738	27.8.34	20.8.35
			(The last pair mates in both years).		

Martin (*Delichon u. urbica*).

LK.424	Benacre (Suffolk), 26.5.35, ad., by F. K. Staunton.	Castle Acre (Norfolk), —.9.35, by Mrs. Elvin
KE.371	Arundel (Sussex), 27.9.35, young, by A. Mayall.	Rotterdam, Holland, 26.10.35, by A. Schouten.

No. Ringed. Recovered.

Swift (*Apus a. apus*).

RINGED AS FULL-GROWN.

5924	Fovant (Wilts.), 13.6.22, by R. C. Clay.	Where ringed, —.6.35, by ringer.	
L.B.851	Rye (Sussex), 7.7.34, by Allen.	Ditto	22.6.35.
MD.259	Pembroke, 25.7.33, by Lockley.	R. M. Ditto	23.5.35.

Kingfisher (*Alcedo a. ispida*).

RINGED AS NESTLINGS.

MV.405	Netherlee (Renfrew.), 17.5.34, for J. Bartholomew.	Where ringed, 28.3.35, by P. Clancey.	
MV.513	Busby (Renfrew.), 31.8.34, for J. Bartholomew.	Levern Bridge (Renfrew.), 2.4.35, by P. Clancey.	
MV.465	Cathcart (Renfrew.), 29.6.34, for J. Bartholomew.	Busby (Renfrew.), 11.4.35, by P. Clancey.	
NW.413	Crookston (Renfrew.), 19.5.33, for J. Bartholomew.	Kittoch Valley (Lanark.), 13.4.35, by P. Clancey.	

Little Owl (*Athene n. vidalii*).

77217	Kelling (Norfolk), 9.6.34, young, by R. M. Garnett.	King's Lynn (Norfolk), 1.6.35, by F. Bland.	
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Barn-Owl (*Tyto a. alba*).

AB.3305	Braddan (I. of Man), 21.7.35, young, by W. Cowin.	St. John's (I. of Man), 8.10.35, by R. Edmond.	
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Hobby (*Falco s. subbuteo*).

RV.2522	Salisbury (Wilts.), 19.8.34, young, by P. Hollom.	Burrington (Hereford.), 28.8.35, by <i>Shooting Times</i> .	
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Montagu's Harrier (*Circus pygargus*).

AA.8455	Horsey (Norfolk), 22.6.34, young, by P. Hollom.	Thornham (Norfolk), 3.7.35.	
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Sparrow-Hawk (*Accipiter n. nisus*).

RV.9857	Cumdivock (Cumb.), 1.7.35, young, by R. H. Brown.	Calthwaite (Cumb.), 27.8.35, by J. Harris.	
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Heron (*Ardea c. cinerea*).

RINGED AS NESTLINGS.

107400	Uffington (Salop), 22.4.31, by W. A. Cadman.	Moreton Valence (Glos.), 9.6.35, by L. Ridgeway.	
113170	Henley-on-Thames, 13.5.34, for Oxford Orn. Soc.	Longparish (Hants.), —.5.35, by Col. Lloyd.	
109211	Ditto —.5.33, for Lt.-Col. Pollitt.	Woburn (Beds.), 12.10.34, by the Duchess of Bedford.	
105844	Ditto 11.5.30.	Bucknell (Salop), 20.12.33, by W. Smith.	
103418	Walton (Surrey), 2.6.35, by F. Mitchell.	Ardingly (Sussex), 26.12.35, by G. Monger.	
114558	Beckley (Sussex), 11.5.35, by P. Hollom.	Rye (Sussex), 2.11.35, by P. Wilson.	
114559	Ditto 11.5.35.	Horsea I. (Essex), 12.12.35, by W. Burrows.	

No.	Ringed.	Recovered.
Heron (<i>continued</i>).		
RINGED AS NESTLING (<i>continued</i>).		
114542	Ditto	11.5.35. Liège, Belgium, —.12.35, by F. Hagelstein.
114917	Ditto	23.6.35. Guines (Pas - de - Calais), France, 6.12.35, by R. Sey.
114572	Ditto	11.5.35. Lucheux (Somme), France, 11.10.35, by <i>Chasseur Francais</i> .
114602	Ditto	11.5.35. Nouan-le-Fuzelier (Loir-et-Cher), France, —.8.35, by J. Monchicourt.
113367	High Halstow (Kent), by P. Hollom.	5.5.35. Stanwell (Middx.), 29.12.35, by P. Butler.
114589	Ditto	23.5.35. La Chaussaire (Maine-et-Loire), France, 27.12.35, by G. Herisse.

Mallard (*Anas p. platyrhyncha*).

RINGED AS FULL-GROWN.

AA.8551	Leswalt (Wigtown), J. Law.	5.3.35, by	Where ringed	21.11.35, by ringer.
AA.8507	Ditto	6.3.34.	Oslo, Norway,	5.10.35, by Dr. Wolleback.
AA.8538	Ditto	7.3.35.	Ditto	—.8.35.
Orielton 25	Pembroke	24.1.35.	Where ringed,	16.12.35, by ringer.

Teal (*Anas c. crecca*).

RINGED AS FULL-GROWN.

(c) RECOVERED AWAY FROM WHERE RINGED.

73001	Longtown (Cumb.), W. Bell.	1.3.33, by	Mouth of R. Esk (Cumb.), —.10.35, by J. Mitchell.
73130	Ditto	1.3.33.	Espedalen (Opland), Nor- way, 13.6.35, by Commdr. Aall.
RV.7084	Orielton, Pembroke, S. Greenslade.	3.12.34, by	Maslovo, Pskov, Russia, 15.8.35, by J. Petroff.
Orielton 86	Ditto	6.2.35.	Vandel, Jylland, Denmark, 8.9.35.
Orielton 354	Ditto	24.11.35.	Pendine (Carms.), 29.11.35.
Orielton 1	Horsted Keynes (Sussex), Spring, 1935, by S. Greenslade.		Orense, Galicia, Spain, 13.9.35.
Orielton 37	Ditto	Spring, 1935.	Where ringed, 21.12.35. (Last two taken from Orielton, 28.12.34, with clipped wings.)

(d) RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered
Pembroke (S. Greenslade).			66	30.1.35	21.2.35
ORIELTON RINGS.					[11.12.35
62	28.1.35	14.2.35 ; [19.9.35	100	17.2.35	28.11.35
65	30.1.35	12.11.35	111	28.2.35	18.11.35

To be continued.

NOTES

BRITISH TRUST FOR ORNITHOLOGY.

VISCOUNT GREY MEMORIAL APPEAL.

ON January 17th, 1936, the Prime Minister, the Archbishop of Canterbury, the Chancellor and Vice-Chancellor of Oxford University and others launched a Viscount Grey Memorial Appeal, one of whose objects is to develop "the existing scheme of research maintained by the British Trust for Ornithology at Oxford . . . and to form a permanent institute of bird studies to which his name will be attached".

We feel sure that readers of *British Birds* will be interested in this appeal, and will do all they can to assist in its furtherance. Donations to the Memorial should be addressed to the Lord Plender at Barclays Bank, 23, Grosvenor Gardens, S.W.1.

PROGRAMME FOR 1936.

For the 1936 season the chief investigations by the British Trust for Ornithology are as follows, and observers wishing to take part in any of them should get in touch with the organizers named in each case.

FOOD OF THE LITTLE OWL.

In spite of all the work already done on this subject sufficient doubt still remains to give rise to continued controversy. The Trust has, therefore, been requested to promote a comprehensive inquiry during 1936 in the hope of settling the persistent conflict of evidence regarding the character of the Little Owl. To what extent, for instance, does it kill other birds and how far does it show individual or local variation in diet?

An account will shortly be published of the results of experiments carried out at the London Zoological Gardens, with the object of ascertaining exactly how closely the remains found in pellets cast up by the Little Owl give a record of the actual food consumed. Observers are being asked to find, collect, and send in, with certain essential particulars, as many Little Owl pellets as possible. In order to avoid waste of effort collaboration is being arranged between those who have already worked on this subject, and Miss A. Hibbert-Ware, who has considerable experience of it, has agreed to analyse pellets for the committee which is to report conclusions. Observers who desire to help should write for particulars to Miss Hibbert-Ware, Hilary, Girton, Cambridge.

WOODLAND BIRDS.

Certain birds are known to be closely attached to woodlands, and many of these have definite preferences either for deciduous or coniferous woods, for woods of a certain age, such as young plantations, or of a special character, such as woods with plenty of undergrowth.

Such special preferences are in many cases imperfectly known. Preliminary study suggests that they are more frequent and more easily traceable than is often supposed, and the object of this inquiry is to enlist a small number of qualified observers in the effort to find out more about them. This involves visiting the well-marked types of wood in a district and recording the individuals of each species found on a slow walk through the wood both in mid-winter and in the breeding season. It does not involve detailed census work. This inquiry was begun in an experimental way with picked observers in 1935. For 1936 it has been decided to extend the inquiry and all observers who would care to take part should communicate with Mr. David Lack, The School, Dartington Hall, Totnes, S. Devon.

Correspondence regarding the following inquiries should be addressed to Mr. W. B. Alexander, University Museum, Oxford.

TAMENESS IN WILD BIRDS.

It is well known that certain birds become very tame and approachable in a wild state, while others stay shy, but this subject, although of the greatest importance both to bird psychology and to bird protection, remains to be properly investigated. The Trust is, therefore, asking bird-watchers to keep and send in records of any *wild* birds which will take food from the hand, enter an inhabited dwelling, allow of unusually close approach and so forth.

BUD-EATING BY WILD BIRDS.

Complaints are frequently heard of buds of trees and plants being eaten by wild birds, but very little is definitely known about this habit. We do not, for instance, know which species of birds are most often responsible, and why they do it—in many cases the buds are destroyed without being eaten. The present inquiry, which particularly concerns observers who have large gardens or orchards, is intended to throw some light both on the economic and the psychological aspects of this curious habit.

HERON INQUIRY.

The sample Census of Heronries is being carried on annually by more than fifty observers. The results of 1935 have already been published in these pages (*antea*, pp. 98-101). No more volunteers are now needed for England and Wales (except Carmarthen) but Scottish observers are required.

DISTRIBUTION AND HABITAT OF THE LITTLE OWL, LESSER REDPOLL AND GREY WAGTAIL.

Several regional and local bird societies have for some years invited their members to concentrate on finding out about the local distribution of a few particularly interesting species, freshly chosen each season. As this practice spread it became obviously desirable that the species observed should, so far as possible, be the same in any given year in all areas where this work was attempted. The Trust was asked to select species for the purpose, and the three selected for 1936 are the Little Owl, Lesser Redpoll and Grey Wagtail. No census of any of these birds is being undertaken, but members of several societies are collaborating in finding out in their own areas the local distribution of these three birds and the exact types of habitat which they favour. Readers who are not sure if their district is covered by a society should apply to Mr. W. B. Alexander.

SNOW-BUNTINGS IN CHESHIRE PLAIN.

I ALSO was fortunate enough to see the two Snow-Buntings (*Plectrophenax nivalis*) near Northwich on October 27th, 1935, which Mr. J. J. Cash has recorded (*antea*, p. 239); his note emphasizes their rarity in the plain and it may, perhaps, be worth recording that I have seen only one other in the plain, at Oakmere on November 18th, 1934. An examination of all the records in T. A. Coward's *Fauna of Cheshire* shows that, except four, all came from the hill-country or from the coast and the neighbourhood of the tidal waters.

Mr. J. Armitage tells me that in 1935 it was not till November 24th that the first was seen in the local Pennines, near Oldham, by Mr. F. Taylor, though, as usual, a careful watch was kept for this species.

A. W. BOYD.

GOLDEN ORIOLE SEEN IN CHESHIRE.

IN the afternoon of November 2nd, 1935, the (Macclesfield) Forest and District Beagles, when drawing for a hare, flushed a bird which was reported to me by Mr. J. F. May, a keen observer of nature but not an ornithologist. Mr. May got a very good view of the bird which he described as being as large as a Thrush, but all brilliant yellow, except for some black feathers on its wings. That this was a male Golden Oriole (*Oriolus o. oriolus*) was confirmed by Mr. May when I showed him a picture of that species. The bird rose alone, without uttering any note, from among some gorse bushes, which lie almost on the summit of the east side of Sutton Common (at this point 1,195 feet above sea level), about $3\frac{1}{2}$ miles south of Macclesfield. It flew fairly near the ground, under the lee of the hill, in a northerly direction. There was a strong wind blowing from the south-west, and a considerable movement of birds was in progress.

RICHARD E. KNOWLES.

SYKES'S WAGTAIL AS A BRITISH BREEDING-BIRD.

MR. E. C. ARNOLD's extremely interesting record of the breeding in the south-east counties of Blue-headed Wagtails of the type of *Motacilla flava beema* (*antea*, p. 199), and the further notes on the subject by Dr. N. F. Ticehurst and Mr. Walmsley White (*antea*, pp. 239-241), have prompted me to re-examine the male of a pair of Blue-headed Wagtails in the Norwich Museum, which together with their nest and eggs, were obtained by Mr. R. Vincent at Hickling, Norfolk, on June 11th, 1894.

Some years ago both birds were seen by Mr. Witherby, who then thought that the female was a Yellow Wagtail (*Motacilla flava rufi*) and the male an unusually pale-headed and much worn *Motacilla f. flava*.

The crown of the latter is of a very pale lavender-grey, darkening slightly towards the nape. The eye stripe is conspicuous and pure white. The posterior portion of the ear-coverts is of the same shade of grey as the nape, but more anteriorly—at about the centre—is a much paler patch which might be described as “dirty white”.

Both from the description and coloured plate in the *Practical Handbook*, this bird appears to correspond exactly to *Motacilla f. beema*, and I think there can be little doubt that it is of the same type as those recorded by Mr. Arnold.

On the other hand the male of a pair of Blue-headed Wagtails which bred in Norfolk in 1931 and 1932, and which I saw upon many occasions, was a typical *Motacilla f. flava*.

B. B. RIVIÈRE.

NOTES ON GRASSHOPPER-WARBLEDERS
IN THE NEW FOREST.

I HAVE for some time been of the opinion that large numbers of Grasshopper-Warblers (*Locustella n. naevia*) nest in, or pass through, the New Forest on migration. I hoped last summer (1935) to have given a substantial amount of time to the investigation of this question, but I was unable to do so. I was, however, about certain parts of the Forest a good deal, and I made a note of any Grasshopper-Warblers I happened to hear singing. Notwithstanding the very limited character of the investigation, and the fact that several sites where these birds are known to have nested in 1934 were not visited, nineteen birds were heard, and it may be worth while to put this on record. Every care was taken to ensure that the same bird was not recorded twice over.

The following table shows the number of birds heard each month:

April.	May.	June.	July.	August.	Sept.	Total.
7	2	—	3	3	4	19
The hours at which the birds were heard singing were approximately:						
a.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
11 to 12	12 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6 6 to 7
No. of birds	3	3	6	4	1	— — 2

The sites in which the birds were heard varied greatly.

Three sites were bog-myrtle and white grass (one intersected by stream), wet or very wet.

One was gorse and ling on high ground, very dry (a pair almost certainly nested in this site in 1934).

One was ling and white grass near a stream, but not very wet.

One was in an open site in a wood, mainly covered with bramble and grass 2 feet high, and rather wet.

One was in bracken and low bramble, and rather wet.

One was in gorse, 3 or 4 feet high, on high ground.

One was in short ling and white grass not above 10 inches high.

One was in bog covered with white grass (about 2 feet) only.

One in bracken and ling and young conifers (about 3 feet) intersected by stream, and rather wet.

One in young conifer plantation—dry.

Seven were in woodland of various kinds with stunted or no undergrowth.

The birds in the seven woodland sites were all heard on or after the 30th July, and were, I think, probably on migration. These sites were not, I think, suitable for, and not likely to have been used for, nesting.

A more thorough investigation would, I feel sure, reveal that large numbers of these birds breed in, or at all events pass through, the Forest annually. BERNARD J. RINGROSE.

SONG-THRUSH FEEDING ON WINKLES.

WITH reference to the note (*antea*, p. 243) of Song-Thrushes (*Turdus e. ericetorum*) feeding on water-snails, the following observation is of interest. When at Thorney Island, near Chichester, on December 18th, 1933, I saw a Song-Thrush hammering something on a large flint pebble on the inland side of the beach. On going up to investigate, I found that the bird had been cracking open a winkle (*Nucella lapillus*) and that a fair-sized heap of these shells lay by the anvil-stone. There had already been two weeks' hard frost and, no doubt, the Thrush found an easier living on the sea-shore than at the farms and gardens inland. L. S. V. VENABLES.

ROBIN REPEATEDLY RE-TRAPPED.

SINCE trapping was started at Dartington Hall School, Devon, the Robin (*Erithacus r. melophilus*) has been re-trapped more often than any other species, and the male owning the territory in which the trap was placed has not infrequently occurred once and sometimes twice each day. But the following occurrence is quite exceptional. On November 21st, 1935, a house

trap was moved into a new territory. The owner was trapped twice that day, twice on the next, on the 23rd it was re-trapped three times, on the 24th five times and on the 25th four times. It was then decided to visit the trap at more frequent intervals, the result being that the bird was re-trapped seven times on the 26th and eight times on the 27th. This makes a total of thirty-one times in seven days, fifteen of which occurred in the last two days. It had become such a nuisance that the trap was then moved.

The reason for such behaviour is unknown. The bird's territory seemed quite adequate. Traps in other territories were not making an exceptional Robin catch at this time. Further, when in the trap, the bird did not feed, but rested on a ledge near the door, which was covered with its faeces at the end of the week.

Since the above was printed another Robin has been trapped six times in one day.

DAVID LACK.

DARK- AND PALE-BREASTED BRENT GEESSE SEPARATING.

IN view of the doubt which still appears to exist in the minds of some ornithologists as to whether the Dark- and Pale-breasted Brents (*Branta bernicla bernicla* and *B. b. hrota*) are dimorphic forms of one race or distinct geographical races (*Ibis*, October, 1935, p. 844), in spite of the ruling of both the B.O.U. and A.O.U. to the latter effect, I feel the following incident should be placed on record.

On December 28th, 1933, I was watching a flock of twenty-five Brent Geese (*Branta bernicla*) feeding on a mud-bank in Poole Harbour, Dorset. Through a telescope I could see that eight of the birds were definitely dark-breasted (*B. b. bernicla*), with their underparts right down to the vent almost as dark as their mantles, and that the majority of the remaining seventeen were equally definitely pale-breasted (*B. b. hrota*). There were, however, two or three doubtful birds which I hesitated to assign to one race or the other. At the time I made these observations the dark- and pale-breasted birds were spread all over the bank, mixing indiscriminately.

A short while later I again happened to examine them and found, to my surprise, a compact little group of eight Brents at one end of the bank and seventeen at the other. Needless to say, a close examination of the two parties showed the one to consist of the eight definite dark-breasted birds, while all the definite pale-breasted birds were in the other, together with the two or three about which I had previously been uncertain.

Not only did this separation take place on the ground, but the two parties also flew separately. I therefore concluded that the two or three doubtful birds were dark individuals of the pale-breasted race, and this conclusion was justified the next day when I was able to examine six Brents which I saw a punt-gunner kill in one shot, from what was apparently the same mixed flock of twenty-five. Two of these were Dark-breasted (*B. b. bernicla*) with slate-grey under-parts, three were typical Pale-breasts (*B. b. hrota*), while the sixth was one of the "doubtful" birds, with under-parts fairly heavily barred with cinnamon-brown, which had made it difficult definitely to identify at a distance in the field, but in the hand there was no doubt that it was a dark individual of the pale-breasted race.

Thus we have the important fact that a completely mixed flock of winter Brents was actually seen to separate into two parties, one consisting only of pale-breasted birds (*hrota*) and the other only of dark-breasted birds (*bernicla*). The chances of this having happened if these were dimorphic forms, and not distinct geographical races, seem to me so remote that I shall never doubt the validity of the separation of the two races.

K. B. ROOKE.

[See Vol. XVIII., pp. 49 and 125, and *Scot. Nat.*, 1917, p. 215, for further evidence on the subject.—EDS.]

GADWALL IN MERIONETHSHIRE.

THE recent cold spell brought an increase in the numbers of duck and waders in the Dovey estuary. Amongst the former I noted a pair of Gadwall (*Anas strepera*). They were cleaning themselves and sporting in a gutter and I noticed the male once made a distinct dive. As a pair of Mallards were close by I was able to make comparisons in the plumage of the females.

The Gadwall is a rare duck in North Wales and it is a coincidence that the records have nearly always been in the month of December.

E. H. T. BIBLE.

BEHAVIOUR OF A GREAT CRESTED GREBE ON ICE. THOUGH Great Crested Grebes (*Podiceps c. cristatus*) are sometimes suffocated beneath the ice, records of the species on the ice-surface must be rare.

On December 26th, 1935, at Elstree Reservoir, then still about two-thirds frozen over after the break-up of the hard frost, I watched for half-an-hour a Great Crested Grebe stranded on the ice.

The bird was sitting about fifty yards from the bank and some thirty yards from the nearest open water. It repeatedly

flapped its wings violently for a few seconds at short intervals in a vain effort to rise, usually then moving forward an inch or two as a result. Its legs and toes were outstretched taut behind it (as in flying), a couple of inches off the ice. I saw no attempt by the bird to get on its legs. In fact it slid about on its belly like a curling stone on the ice, which was there smooth as glass. Occasionally it turned its head and with open mandibles pecked feebly a few times on the ice on either side of it; but this seemed to be a quite unreasoning action. How long the Grebe had been in this strange plight I know not; but it had certainly arrived after noon on December 23rd, and probably much later. Presumably it had mistaken the smooth surface of the ice for water when alighting. No Grebes had been visible at the Reservoir since the early days of the month. In short, it seems certain that, owing to its total inability to rise, the bird would have perished had the frost continued. Forty-eight hours later (December 28th), the ice having completely melted, a single Great Crested Grebe—no doubt this ice-bound bird—was swimming and diving at the Reservoir. BERTRAM LLOYD.

BLACK-TAILED GODWITS IN SOUTH DEVON.

EVERY autumn for the past eight years I have observed Black-tailed Godwits (*Limosa l. limosa*) in small parties up to six, on the upper part of the Exe estuary, and they usually remain there for several weeks. My notes for this species in the autumn of 1935, however, are so remarkable as to be worth recording:—

Aug. 3rd, counted	33	Sept. 3rd, counted	39.
.. 5th, ..	31	.. 16th, a large party, un-	
.. 16th, ..	7	.. counted.	
.. 19th, ..	18	.. 18th, Counted 26 (but	
		there were many	
		more among other	
		species).	

It was unfortunate that I was unable to make any further visits. To confirm the correctness of both identification and numbers, I may say that I am very well acquainted with the species, and I was using powerful glasses. My visits were timed for high water, when the birds were congregated at a particular spot which they always frequented, and at which I could easily observe and count them from a partially concealed position.

In each case they were carefully counted at least three times, and no individual bird was more than sixty yards

away, and many were much less. Counting was also made easier by their always being the last species to leave this spot before dispersing for feeding.

Although the numbers seen at each visit naturally varied, it would certainly appear that this large party of upwards of forty birds remained in the district for at least six weeks, and it may be assumed that the bulk of them were birds of the year.

R. M. BYNE.

CHOUGHES REPORTED IN ORKNEY, DORSET AND SUSSEX.—It is curious that reports which, if not entirely certain, are substantial, of Choughs (*Pyrrhocorax pyrrhocorax*) appearing in places far from their nearest breeding quarters, should have appeared at a time when the bird is generally regarded as decreasing. Mr. Duncan J. Robertson informs us that Mr. T. Logie observed on Westray, Orkney, in the week ending October 19th, a bird sitting on a sheep's back. It was a good deal bigger than a Starling, black coloured, and had bright red bill and legs. Mr. Jourdain is including a note in his next "Report for the Bournemouth District" of two birds seen in Poole Harbour in January, 1935, by two observers and again on Brownsea Island by a third observer, "with red bills and red feet and flight something like Jackdaws". Mr. W. G. Horton, writing to *The Times* (October 2nd, 1935), describes a bird seen by him near Lewes, on September 29th, which from his description was certainly a Chough, though in this case as the bird allowed a very near approach before flying away it may have escaped from captivity.

IMMIGRATION OF CROSSBILLS.—The following notes have been received additional to those already published (see pages 112-113, 148-149, 175-176, 214-215, 252-253).

YORKSHIRE.—Noted October 19th, near Pickering (E. G. Holt).

GLOUCESTERSHIRE.—Fifteen on December 23rd (reported a month earlier by a keeper) in Wychwood Forest (C. A. Norris).

SOMERSETSHIRE.—Thirty, August-September, Brent Knoll; about twelve, October 26th, near Chard; two, October 25th, near Bridgewater (E. G. Holt).

DEVONSHIRE.—Several parties up to fifteen, December 21st, 26th, near Tiverton (E. G. Holt).

PEMBROKESHIRE.—One, September 6th, St. David's; two, 9th, Goodwick (B. Lloyd).

WAXWINGS IN MIDDLESEX AND DERBYSHIRE.—Mr. H. J. Hoffman informs us that he saw a single Waxwing (*Bombycilla garrulus*) in Gunnersbury Park on January 1st, 1936, and Mr. R. Eglinton reports two seen on November 26th, 1935, near Ambergate.

SUBALPINE WARBLER IN ROSS-SHIRE.—At the October meeting of the British Ornithologists' Club Mr. Hugh Whistler

exhibited a female Subalpine Warbler which had been killed with other birds by striking the Tarbatness Lighthouse on May 3rd, 1935 (*Bull. B.O.C.*, LVI., p. 5). Mr. Whistler stated that the bird, which had a wing of 58.5 mm., belonged to the typical race, but females of *Sylvia cantillans cantillans* and *S. c. inornata* cannot, so far as we know, be distinguished. This is the fourth reported occurrence of the bird in Scotland, while a fifth has been recorded from Wexford, and so far none from England or Wales.

BLACKCAP WINTERING IN SOMERSET.—Mr. E. G. Holt informs us that he saw a Blackcap (*Sylvia atricapilla*) in his garden at Brent Knoll, on January 5th, 1936. The bird seemed in perfect condition. There are at least eight previous records of birds obtained or seen in Somerset between November and February, but mostly in January.

LATE MARTIN IN KENT.—Mr. B. B. Osmaston informs us that he saw two Martins (*Delichon urbica*) flying about a cliff at Kingsgate, Broadstairs, on December 3rd, 1935.

LESSER SPOTTED WOODPECKER IN CARNARVONSHIRE.—With reference to the statement that the Lesser Spotted Woodpecker (*Dryobates m. minimus*) had not been recorded for Carnarvonshire (*antea*, p. 179), and Mr. Mitchell's note (*antea*, p. 246) that he saw one at Gloddaeth in November, 1933, Mr. R. W. Jones points out that he recorded one at the same place in April, 1926 (*Vol. XIX.*, p. 312). These two records point to the bird's being resident in this locality.

LATE CUCKOO IN ARGYLL.—Mr. H. J. Parsons records (*Field*, 23, XI., '35, p. 1239) that a young Cuckoo (*Cuculus c. canorus*) was observed at Lochgilphead on November 7th and 8th, 1935, and picked up worms thrown out by a man digging. On the 10th the Cuckoo was found dead, and was sent to the British Museum (Natural History). Mr. N. B. Kinnear informs us that the bird was in a very emaciated state and its stomach was empty.

SHAG IN INNER LONDON.—Mr. E. G. Pedler informs us that he saw a bird which he afterwards identified as a Shag (*Phalacrocorax aristotelis*) resting on the Serpentine Island, Hyde Park, during October 14th and 15th, 1935. On the 18th the bird was swimming near the bridge and Mr. Pedler thought it was a Shag on account of its smaller size than a Cormorant and that it had an apparent swelling on the forehead. This identification was confirmed later when he and Mr. D. Gunn watched the bird diving within a few yards.

LETTERS.

A CHART OF BIRD-SONG.

To the Editors of BRITISH BIRDS.

SIRS,—I have studied with considerable interest, in the December issue, Mr. H. G. Alexander's article and chart on the song-periods of birds, and all the more so as the songs and notes of birds have been an engrossing study with me (in Cheshire) practically all my life. This is the best attempt I have come across to express the times and duration of birds' songs, and in the case of many items I consider the chart both precise and thorough. With many of its records my own entirely agree; with others there are differences, a few of which I mention later. Of several unusual species I have no "song" records. In my opinion the study of the songs and varying notes of birds is one that has not received quite as much special attention on the part of bird students as some other branches, and this weakness is shown from time to time both in newspaper articles and books. Mr. Alexander's difficulties in compiling his chart can be well appreciated—the "great difference as between district and district, season and season, and one bird and another". The result, of course, is not perfection, but much concise information is set forth, the "niceness" of which in many cases can only be fully appreciated by those who, like Mr. Alexander, have accumulated data at all times and seasons over a long series of years. I find the dots and dashes ("occasional song or sub-song" and "irregular but frequent song", respectively) sometimes rather confusing; and would not the chart have been still more effective if, by a thickening of the line, conspicuous song-periods had been shown? Another point, it would be of great interest to see a chart confined to seasonal notes alone. In the present chart, even if they were intended to be included, they must be swallowed up in the song-periods of song birds generally. There is that conspicuous spring call of the Chaffinch, for example, heard most noticeably during April. In most parts of the country, perhaps, it may be described as "weet", but in several counties round London the note seems to be a much more metallic "zweet".

Greenfinch.—I have several song-records in September, which the chart shows blank.

Chaffinch.—I think the chart cleverly expresses the chequered song throughout the year. This bird excels in sudden outbursts of song at unexpected times, and I have various records on the part of individual birds quite detached from the usual summer period. An extraordinary instance occurred in 1926, when, on August 3rd, a Chaffinch was heard singing with great vigour in a garden tree. This was repeated on the following and succeeding days, in the same garden, and usually in the morning hours, till the month end. And not only so, but throughout September as well, and even till October 8th. The strength and vigour of the song was maintained throughout. Perhaps stimulated by this particular bird, other Chaffinches began, early in October, with the customary sharp and excited notes and half-songs, to practise their autumn music, and the voice of the hitherto untiring songster was lost. The following year a Chaffinch, perhaps the same bird, sang just as lustily day after day, all through August, till September 5th. The usual autumn song of the Chaffinch is a variable quantity, some years extremely slight, other years fairly conspicuous.

Yellow Hammer.—The autumn song of this most uncertain autumn songster is neatly indicated in the chart by some dots in October and early November. I have a few records during late November, and one early in December.

Reed-Bunting.—The complete cessation of song for the year is shown about the middle of August, and this tallies exactly with my own observations. The comparatively short yearly song-period of this bird is a curious contrast to that of the Corn. Yellow and Gull Buntings.

Skylark.—A long and sunny autumn occasions a wealth of song. In autumns of broken weather Skylarks seem satisfied, for the most part, with constant trilling, often low over the ground. In a fine September the song is much more notable than the chart indicates.

Tree-Creeper.—The Chart shows a blank of a month till late August. I find records of song for August 8th, 12th and 16th, and several later.

Goldcrest.—I have several song-records for January and February, and for August, and, of course, many in September and October.

Willow-Wren.—In my experience the chart makes too much of the July song. During that month the song becomes extremely frail and infrequent, and fades practically to vanishing point, then rallies towards the month end. It is during the first half of August that the autumn song is at its best, and it is not necessarily confined to the morning hours; later in the month it fades and weakens, and it is usually lost after the first week in September, though I have stray records up to the 20th.

Reed-Warbler.—I have numerous song-records from the Cheshire meres during August, which month is a blank in the chart.

Sedge-Warbler.—The chart song-record ends with July. I happen to have many August dates.

Mistle-Thrush.—My experience tallies with the chart, that this bird ceases to sing most years about the end of May or in the first week in June. In June, 1917, however, Mistle-Thrushes maintained their song much later, and I heard the last on the 20th. Perhaps this was due to late nesting consequent upon the preceding very long and severe winter.

Blackbird.—That this bird "goes on singing much later in the summer in some districts than in others" is a curious fact. Even in districts not many miles apart. It sings all July in rural Cheshire, but in certain wooded suburbs it continues well into August. This is confirmed year after year. The chart shows a blank for October and November, but I have several October records, including the light sub-song. In October, 1934, a Blackbird surprised me considerably by singing most days, sometimes in the morning, sometimes later, and in full view. This continued until early November.

Robin.—The lengthy song-period, with that never-failing quiet interval about midsummer, is well expressed in the chart. The Willow-Wren and Robin keep company with their frail snatches of song during that quiet interval.

Hedge-Sparrow.—This is a conspicuous October songster in Cheshire. And it expresses the coming spring, as January advances, with unusually warm and fervent song, even in winters of outstanding severity.

Dabchick.—The chart records a blank from mid-October. I find a few records during early November.

Quail.—In the long, hot summer of 1893 (and occasionally since) we had many Quails in Cheshire, and I heard the notes frequently from

May 20th. The chart shows June and July only. My latest date was July 18th.

Mr. Alexander's attempt to classify birds' songs according to merit (he describes it as "a rough attempt") I think is scarcely satisfactory, and this will be evident if chosen birds under each of the four classes are compared with others of their class. It is surely rather rough on the House-Martin, for example, to be put in Class 4, whilst the Corncrake appears in Class 3!

JAMES J. CASH.

LYMM, CHESHIRE.

January 4th, 1936.

A CHART OF BIRD-SONG.

To the Editors of BRITISH BIRDS.

SIRS,—I have read Mr. Stanley Morris's letter several times, but I am still at a loss to know what it is all about. I can only suppose (a) that he has not realized that the purpose of the chart (what he calls the "main issue") is to show the *periods* of bird-song, not their musical value; (b) that he has not read the introduction. In the introduction I thought I made it clear that in my *rough* attempt (which was almost an afterthought) to divide the songs and seasonal cries into four classes according to merit, I was not only thinking of musical value, but was also taking into account such factors as strength and persistence of song. In any case, as Mr. Morris himself says, "differences of opinion are inevitable", so I don't quite see why he wants to insist that his opinions are better than mine. If he had published a paper classifying according to merit, and had put the various birds in the classes he suggests, I think I could have accepted all his "corrections" without much question. They are all border-line cases. By the way, I did not put Reed Bunting in Class II., as he alleges. But how he thinks I could avoid having the Nightingale and the Tawny Owl on the same page quite beats me. In the table I naturally followed the order of *The Practical Handbook* and other books of reference. If Mr. Morris finds this juxtaposition painful, I hope he will draw a thick line at the end of the *Passeres*, after Sand Martin, to show that "song proper" now ends and "seasonal calls" are about to begin.

His last paragraph, about the Snipe and Lesser Spotted Woodpecker, shows conclusively that he had not bothered to read my introduction, in which I stated my reasons for preferring to give the non-vocal music of these two species. It is clear from both the letters you publish, and from other correspondence I have had, that I ought to have explained further about some of the seasonal cries of the non-passerine species. Thus, for the Little Owl, I was giving the period, not of its yapping cries, which are no doubt partly seasonal, though they seem to be uttered in every month, but of the curious, rather faint "snoring", often uttered with great persistence by day in the spring-time, but as far as I have been able to observe, at no other time. Then, as to the Waders; in almost every case these have trilling cries, often uttered in the air with trembling wings, or with slow wing-beats, nearly always based on the ordinary call and alarm-notes, but quite distinct. Similarly, the Green Woodpecker's laugh, though closely resembling its ordinary cry, is higher-pitched and usually longer. For the Great Crested Grebe, I have given the period of its challenging snort, usually accompanied by "display" of some kind, for the Dabchick its twitter, and for the Pigeons their coos. The rest are, I hope, self-explanatory.

I am interested in Miss Hibbert-Ware's considerable extension of the period of the drumming of the Great Spotted Woodpecker. In

my experience, most of their drumming is in the early morning; perhaps Miss Hibbert-Ware is an earlier riser than I am. Mrs. Hodgkin had also told me that she heard one in the late autumn this season, in the north of England. Mr. Armitage sends me word that, as a result of further observations on moorland song, September, October and November should all have dots in the case of the Red Grouse, and November in the case of the Twite. Probably other observers can also extend the dots. On the day after I had returned the final proof of the article (November 21st) I heard a Blackbird sing—apparently my first November record; and for the past fortnight (I write on January 2nd), several local Tawny Owls have been doing their best to point out that their "hooting" line should be quite unbroken at this time of year, in spite of frost, fog and snow.

The Editor has also kindly allowed me to see Mr. Cash's interesting letter, with its valuable supplementary information which tends to illustrate the variety of song-periods in different districts. What Mr. Cash says of the Willow-Wren in Cheshire, for instance, certainly does not apply in districts known to me. Mr. Cash, like Mr. Morris, seems to have been misled by my use of the expression "classification according to merit". If he will look again at the paragraph in which I expounded this, he will see why the Corncrake, with its harsh, persistent cry, is in group 3, the House-Martin, with its sweet, but feeble and infrequent ditty, only in 4. The word "merit" was probably not the best word to use.

I agree with Mr. Cash that too little attention has been given to bird-song, in comparison with other aspects of bird behaviour. Perhaps some ornithologist will soon undertake a serious inquiry into the significance of bird-song, and of other noises that birds make, some of which, as Mr. Cash notes, are largely seasonal. I may point out that the first essential of such a scientific study will be the dismissal of our besetting human preconceptions about the musical quality of the various sounds.

H. G. ALEXANDER.

P.S.—The Firecrest's song I should have described as of lower *pitch*, not lower *tone*, than the Goldcrest's.

MOVEMENTS OF JAYS IN FRANCE.

To the Editors of BRITISH BIRDS.

SIRS,—In the November number of *British Birds*, in your editorial note on page 175, you express a wish to have further observations on the movements of Jays noticed in some parts of England during the autumn of 1935. Although writing from a region outside the British area, I think the following facts will interest you as showing the magnitude of the migration of this species in October, 1935. I am writing from my home, near Cognac, in the south-west of France, about eighty miles north of Bordeaux, fifty miles east of the Atlantic coast, in the valley of the river Charente.

The first movements were noticed here on September 25th, but it was difficult then to say whether they had more than a local character, as it happens frequently in this country that a certain number of Jays leave their breeding places in the autumn to go and feed on acorns and beech-mast in more densely-wooded neighbouring areas. However, during the first days of October, 1935, there was a marked increase in the numbers of Jays flying overhead in a southerly direction. On October 8th, the sky being overcast, a light wind blowing from the south, a considerable "rush" took place, the stream of migration

passing continually from due north to south in the direction of the Pyrenees, the greatest intensity being between 11 a.m. to 3 p.m. The next day, October 9th, at daybreak, the woods around us were literally swarming with Jays feeding on acorns and chestnuts. Their migration was at its climax on that day, lasting practically all day until about 3 or 4 o'clock in the afternoon, with more or less definite "rushes".

On October 10th, 11th and 12th there was a decrease in the movement which came to an end on the 14th and 15th.

During their migration, the Jays travelled generally at a height of between fifty to a hundred yards and in a more or less scattered order. Sometimes a dozen birds would fly together, as Rooks or Crows will do, to be followed at some distance by two or three or by a solitary bird at fifty yards' interval. Then a more important group would again appear. A good many individuals would alight on trees in wooded parts.

Thousands of Jays must have passed over the area which I had under observation. Local "sportsmen" made wonderful "bags". I am sorry, however, that I cannot give any information about the width of the front of migration.

I can only recollect one single instance, about thirty years ago, when movements of a similar importance took place in the autumn. I am sorry I have no data about the year. As a rule there is no real migration of Jays in this country in autumn and no return movement in a northerly direction is noticeable in the spring. JACQUES DELAMAIN.

[cf. also *L'Oiseau*, Vol. IV., N.S., p. 192 (1934) F.C.R.J.]

THE MOVEMENTS OF SEA-BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—I was particularly interested to read Mr. P. H. Trahair Hartley's article on this subject (*antea*, pp. 203-210), as I have studied the flights of sea-birds at the other end of the English Channel—off Dungeness—for many years past. From November to March or April great numbers of Red-throated Divers (*Colymbus stellatus*), Auks (chiefly Guillemots), Scoters and other sea-birds haunt the narrow parts of the Channel, as passengers from Folkestone to Boulogne especially, may often see. The Scoters, however, tend to keep closer in shore, both off Littlestone-on-Sea and in Rye bay.

My visits to Dungeness have usually been either just after Christmas, or in late March and early April, and they have been irregular; so that, although I have a number of records of birds seen flying past Dungeness point at various hours of different days in the past twenty years, it would be difficult to reduce them to any very serviceable graph or table.

In the early years of my observation I assumed that when I saw large numbers of Red-throated Divers (sometimes over 100 in ten or fifteen minutes), or flock after flock of Scoters flying steadily in one direction for an hour or more, it must be part of a long-distance migration. But recently I have changed my mind, and now I agree with Mr. Hartley's view that these flights are local movements. At Dungeness, as in Cornwall, they vary considerably from day to day; but at Dungeness, in contrast to the Cornish observations, they also vary in direction. Thus, sometimes I have seen a large south-westerly flight in the morning, and then, later in the day—sometimes even before mid-day—the main direction is changed, and dozens may be seen going in the opposite direction, north-east. At other times the movement gradually

peters out, partly because numbers come to rest on the sea close to Dungeness point.

The tentative conclusion I have reached is that these movements may be partly related to wind, but (about Dungeness at any rate) still more to tides or currents. The currents in the Straits of Dover are, as is well-known, very strong and rather complex. It would seem that during the night the birds may get carried up (or down) channel until they are outside their normal feeding-grounds; accordingly, from dawn onwards, they fly south-westward again (or north-east, as the case may be). Sometimes, with the change of tide, they then get carried too far the other way, and so they fly back again. It looks as though they tend to fly right across their feeding-grounds, so as to begin again at the far end. This applies especially to the Divers and Guillemots (*Uria aalge*), whose feeding-grounds include a considerable zone of water to east and west of Dungeness, and the part of the Channel opposite the point. The Scoters feed, as I have said, in the shallower water to north and west of the point. It is all the more noteworthy, therefore, that when a strong movement is proceeding, there are usually as many Scoters of both species (*Oidemia nigra* and *O. fusca*) participating in it as there are Divers or Auks.

As to correlation with the wind, my notes seem to indicate that the main flights are usually against the wind, but certainly not always. Thus, on a certain December day, with a strong south-west wind blowing, I watched for twenty minutes in the middle of the morning, and all that time birds of the four commonest species were flying up-channel, that is, with the wind, only three or four going the other way, as against sixty to seventy flying north-east. In the afternoon of the same day, the wind still the same, the movement, on a rather smaller scale, was reversed.

I do not pretend that I have fathomed the whole complex of causes that leads to these great daily flights. I have sometimes been inclined to think, however, that the birds fly across and across their feeding-grounds once or twice a day for the sake of what a human being would call "exercise". As far as my observations go, I should say that, in normal conditions, nearly all birds undertake far more activity than is necessary for the mere obtaining of food. In the case of sea-birds, no doubt winds and tides affect these movements—also, probably, the movements of shoals of fish. But there perhaps remains a good deal that is not directly caused by any external factor.

H. G. ALEXANDER.

REVIEW.

A Vertebrate Fauna of Forth. By Leonora Jeffrey Rintoul and Evelyn V. Baxter. (Oliver & Boyd). Plates and Map. 25s. net.

IN 1887, Harvie-Brown and Buckley, in *A Vertebrate Fauna of Sutherland*, etc., began a series of Scottish faunistic works divided into areas separated by natural water-sheds and water-ways as planned by Dr. Buchanan-White. The authors stated that these were "perhaps more consistent in their peculiarities from a floral than from a faunal point of view" and it has long been evident that so far as the avi-fauna is concerned these so-called faunal areas have little or no meaning, and are extremely unpractical and inconvenient. This is especially so in areas such as the Forth, which includes all the land draining into the Firth and river of that name, and thus cuts in half such counties as Fife, takes in parts of many other counties and extends far into the

mountains of south Perth. In this area almost every type of ground from sea to mountain is included, and thus all sorts of birds from Gannets and Petrels to Golden Eagles and Ptarmigan. The area has no more claim to be a natural one from the point of view of the avifauna than has a political area such as a county, and it has the great disadvantage from a practical point of view of its limits being unknown without a special map. The faunas relating to the adjoining areas north and south of Forth were published so many years ago ("Tay" 1906, "Tweed" 1911) that it would have been far more useful had this volume on the Forth included the whole of each county involved. If, then, under each species of local distribution its status had been set out separately for each county, we should have had a work ideal for easy reference and our knowledge would have been brought up to date of the birds in those portions of the counties now meticulously cut off by a sinuous line following the slopes of the hills and stopping at points of the coast.

Except that the authoresses of this volume have adhered strictly to what we can only regard as a shibboleth we have nothing but praise for their work. The accounts of the birds are very carefully done. The history of each species is adequately set out, and valuable comparisons of its past and present status are often made and sound judgment is shown in dealing with uncertain records (always one of the most difficult tasks in such a work), and there is besides and above all this evidence of a vast amount of first-hand work in the field by the writers themselves. This last-mentioned important feature refers not only to exploration of the area for the purpose of defining the status of certain species, but to much observation (detailed under many species) of migration, especially on the coast of Fife and at the Isle of May, where the authoresses did such good work for so many years.

We can draw attention here to only a very few of the special items which we have noted. There are interesting accounts of migrating Carrion-Crows on which little certain evidence has hitherto been published, the histories of the increase and extension of range of such birds as the Starling, Hawfinch, Great Spotted Woodpecker and some of the ducks are worthy of special attention. Some of the records of rarities appear to be additional to those previously published; the Marsh-Tit is considered to be absent from the area and although we were the first to point out, many years ago, that we knew of no specimen of a Marsh-Tit obtained in Scotland, we should have liked definite evidence that the black-capped tits in Forth are indeed Willow-Tits.

The Cormorant, while present at all times of the year, is not now known to breed within the area; it is a pity that Mr. John Bain's careful count in 1929 of the Gannets' nests on the Bass is not given; the date of the Loch Katrine Great White Heron was, we believe, 1881, and not 1887; a few records of the breeding of the Roseate Tern in the area are given, and to these can be added the two nests recorded by Mr. Reeve in these pages (Vol. XXIII., p. 102), as found on the "east coast" in 1927.

The volume is very nicely produced and is embellished with some fine and appropriate photographs and a map. It is altogether a most excellent and thorough piece of work and will prove especially valuable to all who study closely the distribution of birds in the British Islands.
—H.F.W.

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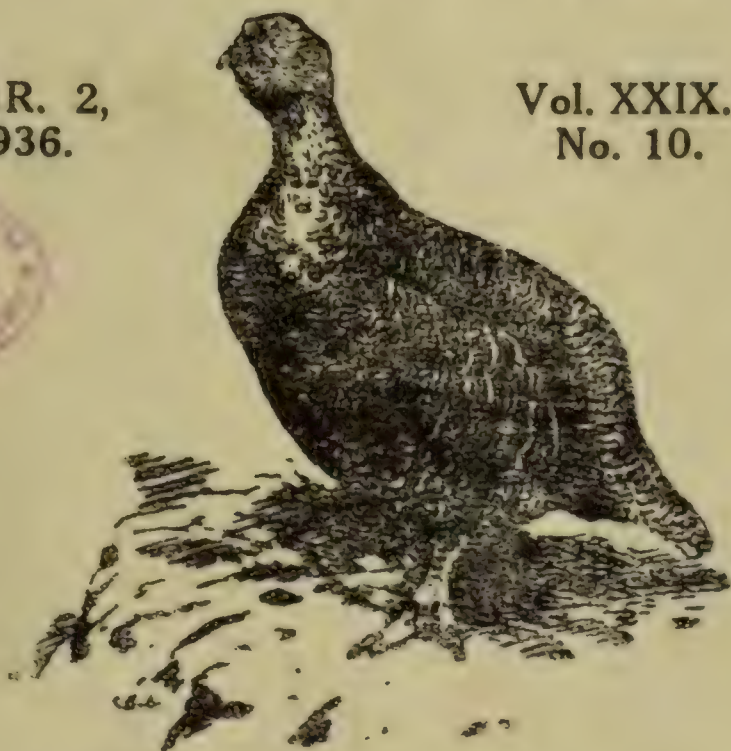
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CONTENTS OF NUMBER 10, VOL. XXIX., MARCH 2, 1936.

	PAGE
Report of an Investigation of the Food of Captive Little Owls. By Miss A. Hibbert-Ware	302
Habits of the Rook. By James W. Campbell	306
Recovery of Marked Birds	310
Starlings Fighting for Nesting Sites. By George Marples ...	321
Notes :—	
Continental Jay in Essex (Dr. J. W. Campbell)	324
Notes from Hampshire and Dorset (K. D. Smith and K. B. Rooke)	324
Roller in Yorkshire (W. S. Medlicott)	326
The Courting Habits of the Kingfisher (P. A. Clancey) ...	326
Numbers of Velvet-Scoter on Sussex Kent Coast (P. A. D. Hollom)	327
Red-necked Grebe in Kent (R. S. Pitcher)	328
Shag in Fresh Water infested with Parasites (H. W. Parker) ...	328
Redshank Displaying in December (Miss M. Monro)	328
Spotted Redshanks in Kent in December (R. C. Homes) ...	329
Short Notes :—	
Scarce Birds at the Isle of May. Hooded Crows in Surrey. Waxwings in Hampshire, Northumberland and Durham. Late Stay of Spotted Flycatcher in Essex. Blackcaps in Winter in Herefordshire and Sussex. Scaup-Duck in Surrey. Shag in Surrey. Black-necked Grebe in Sussex. Black-tailed Godwits in Devon and Cornwall.	329
Review :—	
<i>A Pocket-Book of British Birds.</i> Edited by A. Hall, F.R.M.S.	331
Letters :—	
Movements of Sea-Birds (P. A. D. Hollom)	331
Sounds produced by Little Owl (Miss A. Hibbert-Ware) ...	332
The Time of Singing of the Grasshopper-Warbler (L. S. V. Venables)	332



PUBLICATION OF THE BRITISH TRUST FOR
ORNITHOLOGY.

REPORT OF AN INVESTIGATION OF
THE FOOD OF CAPTIVE LITTLE OWLS.

BY

Miss A. HIBBERT-WARE.

A SERIES of experiments was arranged in the autumn of 1935 by the British Trust for Ornithology, to be carried out at the London Zoo with the collaboration of Mr. D. Seth-Smith, to whom warm thanks are due for his assistance. The primary object of the experiments was to prove whether the food-pellets of the Little Owl (*Athene noctua*), formed in the gizzard and evacuated by way of the gullet and mouth, supply reliable evidence as to the nature of the food of the bird or whether any considerable amount of undigested hard material passes out through the intestines and anus. A further object was to discover how the Little Owl deals with superfluous food when presented with more than its usual ration (see Experiment IV.). With the first end in view, two captive Little Owls, in a cage 4 by 2½ feet in size, were supplied with an exclusive diet of dead House-Sparrows and mice alternately every two days. This was repeated three times for each type of food. Mr. Seth-Smith, who kindly examined the faeces, found no hard matter whatever in them. The keepers also found no unused remains of the food (such as wings and heads) in the cage. It would seem, therefore, that the entire bony and horny portions of the food must have passed out in the pellets. These were sent to the writer for analysis and the tables given below are the results of her investigations. Experiment IV. gives the result of the superfluous food experiment described below :—

CONTENTS OF PELLETS DERIVED FROM HOUSE-SPARROWS.

	I.	II.	III.	IV.
Number of pellets ...	2	4	3 large 1 small	2 large * 2 small
Combined weight of pellets ...	⅜ oz.	¼ oz.	¼ oz.	⅝ oz.
Beaks ...	4	3	2	fragments of 1
Skulls ...	... fragments	1 fragment	fragments	fragments
Quadrate bones ...	3	0	2	1
Mandible condyles and articular processes ...	6	3	4	2
Scapula ...	7	0	6	5

*Average size of pellets 1¼ inch × ¾ inch. Large pellets 1½ inch × ¾ inch. Small pellets ½ inch × ¼ inch.

CONTENTS OF PELLETS DERIVED FROM HOUSE-SPARROWS

				— continued.			
				I.	II.	III.	IV.
Clavicle ...	...	...	6	0	3	2
Coracoid ...	...	...	5	2	6	3
Humerus...	...	...	8	6	5	5
Ulna ...	...	...	7	4	4	3
Radius ...	...	...	6	4	4	3
Carpo-metacarpus	...	...	7	5	2	4
Innominate bones	...	...	4	0	4	4
Femur ...	...	...	5	0	6	3
Tibia and fibula ...	...	...	7	2	2	3
Tarso metatarsus	...	...	8	1	2	4
Phalanges and claws	...	several	several	several	2	complete feet	
Vertebrae...	...	...	many	many	many	many
Ribs ...	...	...	many	5	several	many
Sternum ...	...	...	0	3	2	1 and fragments
Gizzard ...	...	...	4	2	2	3
Number of sparrows re-	presented in pellets	...	4	3	3	3	

CONTENTS OF PELLETS DERIVED FROM MICE.

	I.	II.	III.
Number of pellets ...	4	9	4 large 3 very small
Combined weight of pellets ...	$\frac{1}{4}$ oz.	$\frac{5}{12}$ oz.	$\frac{3}{8}$ oz.
Jaw bones (with molars) ...	24	9	25
Skulls ...	fragments	fragments	fragments
Bulla oblongata ...	0	0	5
Scapula ...	1	0	4
Clavicle ...	0	0	0
Humerus ...	10	4	16
Radius and ulna ...	14	5	9
Metacarpus and phalanges	several	several	several
Innominate bones ...	4	4	13
Femur ...	12	6	16
Tibia and fibula ...	12	6	15
Metatarsus and phalanges	several	several	several
Vertebrae ...	many	many	many
Ribs ...	many	many	many
Sternum ...	0	0	0
Number of mice represented in pellets ...	7	3	8

NOTES ON THE EXPERIMENTS.

I. It is clear from the analyses that all the bones of the prey, large and small, may be found in the pellets. When some of the larger bones are missing this is often due to the fact that they were "left-overs" in the gizzard of the owl and would have been evacuated in the next batch of pellets. Sparrow bones, for instance, were found in several of the mouse pellets in this investigation, and the tail of a mouse in

a sparrow pellet. In some cases, however, the ends of some of the missing bones have been broken off and pulverized in the gizzard and the intervening parts are then not easily recognized. Some of the small bones, too, are often comminuted and pass out tightly wrapped in the feather debris of the pellets.

2. It is interesting to note that the carpo-metacarpal bones are among those most perfectly represented in the Sparrow pellets. This indicates that in captivity the Little Owl normally swallows the entire wing. The quill feathers of both wing and tail are often so completely pulverized as to be unrecognizable as such though sometimes they are almost intact.

3. Wheat grains and insect elytra were present in most of the pellets—doubtless derived from the stomachs of the prey. The gizzards of the Sparrows were, with one exception, empty, the contents being found free in the pellets.

THE SUPERFLUOUS FOOD EXPERIMENT (No. IV.).

The result of this experiment has a special interest. The Little Owls on this occasion were offered eight dead Sparrows instead of their usual ration of three or four. The debris forwarded for examination was considerable and consisted of :—

- (a) Three Sparrows, untouched by the Owls.
- (b) One Sparrow with both wings severed, otherwise whole.
- (c) One Sparrow with head and one wing severed.
- (d) The three wings of (b) and (c).
- (e) Three heads (one belonging to (c)).
- (f) Four pellets (see Table No. IV.).

Thus the four pellets would be expected to represent two headless birds and the skeleton of one complete Sparrow. This proved to be the case. The Owls used only the normal number of Sparrows as food. They mutilated two others.

Another experiment was suggested by the Rev. F. C. R. Jourdain to ascertain the effect of supplying the Owls with food too large to swallow whole. Accordingly a freshly killed pigeon was presented to them as their 24 hours' ration. This remained absolutely untouched by the Owls.

AN EXPERIMENT WITH A DIET OF EARTHWORMS.

A further experiment was made at the London Zoo in order to ascertain the effect of an earthworm diet on the Owls. As a result of this the following report has been sent by Mr. Seth-Smith :—

"The keeper reports that at the first experiment he gave half a pint of earthworms to two Owls and all were eaten. The second night a pint to these same birds. They cleared up the whole lot but no pellets of any description were formed although the excreta was excessive".

It appears, therefore, that in the absence of soil and other roughage, soft food probably forms no pellets to be excreted by way of the bill.

CONCLUSIONS DRAWN FROM THE EXPERIMENTS.

It is evident that with captive Little Owls :—

1. The hard, indigestible parts of the food are evacuated from the stomach entirely by way of the gullet and mouth in the form of pellets.
2. When the supply of Sparrow food is moderate, the entire bird is used as food, both head and wings being swallowed.
3. In the presence of an abnormal supply of Sparrow food, the heads and wings of the bird may be severed and rejected.

Finally, it is desirable to emphasize the fact that these experiments were carried out with Little Owls in fairly small cages. A good deal more might be learnt by means of further experiments amplifying the work begun at the Zoo. If it were possible for a Little Owl to be kept in a large aviary, the problem of how the bird acts when confronted by superfluous live food might be solved, hiding places for storage being provided in the aviary. Observations could also be made on the extent to which the bird feeds in the daytime and as to how often pellets are ejected. The writer would welcome the co-operation of any aviculturist who would be willing to help in this way.

HABITS OF THE ROOK

Some notes on an Essex Rookery.

BY

JAMES W. CAMPBELL.

FOR over twelve years I have kept regular notes on the habits of Rooks (*Corvus f. frugilegus*) at a rookery near my home in Essex. A considerable amount of information has been obtained during this period, but the following notes refer only to certain aspects of their life history, concerning which information is still especially required. By indicating which these are, the *Life of the Rook*, by G. K. Yeates, has been of great assistance while working through my notes.

Courtship.—The courtship of the Rook, the bowings and cawings and posturings which take place with so much excitement in the nest trees and on the ground near the rookery, has often been described. The love-flights which are surely equally a part of their courtship, have been apparently almost overlooked; in fact, the only reference I can find is that by Mr. Burkitt (*antea*, Vol. XXVIII., p. 322), who states that "mating flights (more clearly proved as such in spring) generally in sets of three . . . have seemed as prominent at times (mainly September) as at the pre-nesting period". A similar state of affairs exists at my rookery where, during the last few days of September until the end of October, the atmosphere in the rookery is similar to that which immediately precedes the construction of nests. There is great excitement at the nests, much courting in the trees, and many love-flights. While courting displays are especially conspicuous at this season and in early spring, they may also occur throughout the winter months whenever the weather is fine and sunny. Autumnal courting displays are not confined to the Rook alone amongst British birds. With certain of the Corvidae, indeed, they would seem to be a regular feature, and I have often watched Ravens and Jackdaws displaying then at their nesting sites, in an identical fashion to that employed during spring.

Although Mr. Burkitt mentions these flights, he gives no description of them, nor does there appear to be any in the literature dealing with the Rook.

I have noticed that the flight of Rooks indulging in these performances, which most often take the form of chasings of the "follow the leader" type around the nest trees, similar to, but more dignified than, those carried out by Jackdaws,

is quite different from that employed on any other occasion. This difference is a change in the character of the wing-beat, the wings being lifted higher above the body than usual so that the flight appears much more buoyant; the Rook, in fact, employs a longer, slower stroke with the emphasis on the upstroke of the wings. This distinctive flight is also employed at times when birds are approaching or leaving the nest trees, but I have never so far seen it employed outside the rookery. There is much cawing during these flights, and often the following birds attempt to "caress" the leader exactly as courting Ravens do. The love-flights of many species depend on a subtle change in the character of the wing-beat, most marked, perhaps, in the waders. The love-flight of the Oyster-catcher is a good example.

Mr. Yeates, in his book, states that the "mating rite" is performed only on the nest. While at my rookery this is certainly the general rule, it is also carried out occasionally in the branches beside the nest, sometimes in trees which do not hold nests, and also, very rarely, on the ground near the rookery.

The amount of "territorial jealousy" exhibited in the immediate vicinity of their nests varies very much with individual pairs. In many cases during the earlier part of the nesting season it is not much in evidence and, strangely enough, it is not till incubation starts that it appears to play a conspicuous part in limiting the number of nests in a tree, and then it is the female or incubating bird which by repeated attacks hampers the construction of new nests near her own. This is especially noticeable in outlying trees, where attempts at nest building are often abandoned apparently solely on this account.

Mobbings, etc.—Mr. Yeates has shown that the "mobbings" of nesting Rooks by other members of the colony, a conspicuous feature of the rookery during the incubation period, are sexual in origin; he is doubtful whether "mobbing" of stick-thieving Rooks occurs. While my observations agree with the view that the majority of these have a sexual basis, milder mobbings occasioned by stick-pilfering do undoubtedly occur, but they are never so violent nor do so many birds take part in them. Any disturbance among the nesting birds in the earlier stages of the breeding season, has an apparently irresistible attraction for neighbouring birds. Mr. Yeates also produces evidence of promiscuity in connection with these mobbings. As Mr. Yeates points out, this is difficult to prove conclusively, but on two occasions I have

obtained satisfactory evidence of promiscuity at this rookery. Incidentally I have also seen an apparent case in the Starling.

Frequently, when an incubating bird is being fed by her mate, other hungry females from adjoining nests will persistently solicit the male so engaged, for food. Such attempts are resented strongly by both members of the rightful pair, but in 1933 a male was seen on several occasions, after feeding his mate, to fly to an adjoining tree where he fed another female. This was not a true case of polygamy, for this second female had certainly a mate of her own.

During April, 1935, a nest was under observation at which two birds were incubating. For some time it was thought that both these birds must be females, but after many hours observation it became clear that one of them, from its behaviour, was evidently a male, for at irregular intervals this bird would leave the nest tree and return to feed its mate. After feeding was over this bird at once resumed brooding. When brooding, the position occupied was invariably the same—on top of, and at right angles to, its mate. On the rare occasions when the male returned to find the nest empty it adopted the orthodox brooding position, but at once came off the nest on its mate's return. Once she had settled herself on the eggs, the male immediately came on to the nest and brooded on top of her. This state of affairs continued for several days, but eventually the male gave up attempts at brooding and became reconciled to the usual routine of male Rooks.

The immature Rook at the rookery.—A number of immatures accompany the adults on their visits to the rookery during September and October. They spend little time at the nest trees, but visit the oak trees near by for acorns. Few immatures come in the winter months, and even at the beginning of the breeding season it is generally impossible to find any at the nest trees. Later on, in the middle of March, a few birds with black "nasal bristles" and traces of the black "face" turn up. As a rule these show little excitement and appear ill at ease. One or two pairs, however, construct nests each year which they usually eventually abandon. In 1934 and 1935 a pair of birds with nasal bristles successfully reared a brood of young. In 1935 the male (?) of another pair which reared young was also a bird with nasal bristles. Mr. Witherby, in his account of the "Plumages of the Rook" (*antea*, Vol. VII., p. 132), suggests that such birds may possibly act as "nurses", for the generative organs of all those examined in first summer-plumage were not in a breeding

condition. The few birds of this age which I have examined have also had the gonads only slightly enlarged. During the breeding season immature Rooks with nasal bristles and traces of the black "face" are not scarce in this neighbourhood. Some, even in April, as far as one can make out with field glasses, show no signs of any face moult, and Mr. Witherby has pointed out that the moult of the "face" is a lengthy process and evidently varies individually. After the break-up of the winter roost they are to be found with Jackdaws, using feeding grounds other than those used by Rooks from the rookery. In the evening many of these non-breeding birds return to the rookery to roost in the "communal" roosting trees. It is, perhaps, worth mentioning, that while a number of male breeding Rooks pass the night in their own nest trees near their mates, a large number, especially from outlying nests, roost together in two trees in the centre of the rookery.

Pellets.—As soon as the Rooks start roosting at the rookery, pellets or "castings" of undigested food material appear below the nest trees. These consist mainly of the husk of corn—wheat, oats and barley—with occasionally whole grains which have not been "digested". Eggshell of the domestic fowl (occasionally), the elytra of "click beetles" (twice), and bones of a small mammal (once) have also been identified. The majority contain also a varying amount of grit, of which red brick and burnt clay form the largest proportion. With the hatching of the eggs, fewer pellets occur below the nests. I have never actually seen a Rook bring up a pellet at the rookery—Mr. Yeates only saw one—but from careful examination of the ground below the nests in the morning and evening it seems that a small number are ejected during daylight. Two tame Rooks which were fed continuously on a "corn meal" diet, brought up pellets as often by day as by night, frequently ejecting one immediately before being fed. The number produced by one bird varied and on more than one occasion two were formed within twelve hours. Although undoubtedly dependent on the amount of residue in the diet—a tame Rook and Carrion-Crow fed on a non-husk diet never ejected pellets—it was interesting to find that the two young Rooks mentioned above did not eject pellets until they were fully fledged.

RECOVERY OF MARKED BIRDS.

(Continued from page 283.)

No.	Ringed.	Recovered.
Wigeon (<i>Anas penelope</i>). RINGED AS FULL-GROWN.		
AA.8556	Leswalt (Wigtown), 5.3.35, by J. Law.	Where ringed 2.11.35, by ringer.
AA.8525	Ditto	5.3.35 Dunragit (Wigtown), 28.12.35, by G. Clutterbuck.
Orielton		
101	Pembroke, 22.2.35, by Greenslade.	S. Sanczursk, Central Russia, 56° 57' N., 47° 15' E.
Orielton		
104	Ditto	23.2.35 Odense, Fyen, Denmark, 17.8.35.
AA.8548	Leswalt (Wigtown), 4.3.35, by J. Law.	Where ringed, 27.12.35, by ringer.

Tufted Duck (*Nyroca fuligula*).

RINGED AS FULL-GROWN.

RECOVERED AWAY FROM WHERE RINGED.

400302	Molesey (Surrey), 24.12.34, by P. Hollom.	Ringwood (Hants.), 24.12.35 by C. J. Bellamy.
AA.8458	Ditto	20.1.34 Where ringed, 24.12.34; Helsingfors, Finland, 18.4.35, by Prof. Välikangas (<i>cf.</i> , <i>antea</i> , p. 138).
AA.8344	London, 17.1.34, for L.N.H.S.	Walthamstow (Essex), —.7.35, by R. Pethen.

RECOVERED WHERE RINGED.

Molesey (P. Hollom).

AA.8314	8.10.33	14.2.34; 16.1.35.
AA.8312	16.11.33	7.1.35.
AA.8448	31.1.34	17.10.35.
AA.8446	10.1.34	28.1.36.

Shag (*Phalacrocorax a. aristotelis*).

113108	Hope Cove (Devon.), 28.6.35, young, by S. Baron.	Teignmouth (Devon), 30.9.35, by W. Keightley.
--------	--	---

Cormorant (*Phalacrocorax c. carbo*).

RINGED AS NESTLINGS.

113915	Mochrum (Wigtown), 30.6.35, by Lord Dumfries.	Girvan (Ayr), 3.12.35, by J. Hyslop.
114123	Ditto	30.6.35 Creetown (Kirkcudbr.), 19.9.35, by A. Birrell.
114074	Ditto	3.7.35 Auchencairn (Kirkcudbr.), 28.8.35, by A. Davidson.
114057	Ditto	3.7.35 Dumfries, 8.9.35, by D. Wilson.
114149	Ditto	30.6.35 Ditto 2.10.35, by P. O'Connor.
113950	Ditto	30.6.35 Firth of Forth, —.9.35, by J. McGill.

No.	Ringed.		Recovered.
	Cormorant (<i>continued</i>).		
	RINGED AS NESTLINGS.		
114044	Mochrum (Wigtown), by Lord Dumfries.	3.7.35	Loch Leven (Kinross), 11.10.35, by W. Telfer.
114142	Ditto	30.6.35	Ditto 11.10.35.
114199	Ditto	29.6.35	Rockcliffe (Cumb.), by N. Alford.
113976	Ditto	30.6.35	R. Towey (Carms.), by V. Hopkins.
113926	Ditto	30.6.35	Medway Marshes (Kent.), 14.9.35, by G. Mate.
113989	Ditto	29.6.35	Belfast Lough (Antrim), 30.11.35, by W. Martin.
114194	Ditto	29.6.35	Lough Neagh (Tyrone), 19.9.35, by J. Killips.
114105	Ditto	30.6.35	Grey Abbey (Down), 1.10.35, by R. McGiven.
113968	Ditto	30.6.35	Kilkeel (Down), 2.11.35, by S. Finn.
113959	Ditto	30.6.35	Dundalk (Louth), 5.11.35, by J. Dixon.
114161	Ditto	30.6.35	Ditto 9.12.35.
114315	Ditto	3.8.34	Etel (Morbihan), France, —, 11.35, by A. Chap- pellier.
9 birds	Ditto.	June, July, 1935.	Coasts of Brittany, France, Sept. to Nov., 1935.
113980	Ditto	30.6.35	Ferrol (Coruña), Spain, 18.9.35, by W. Martin.
114016	Ditto	3.7.35	Arosa (Galicia), Spain, —, 12.35, by E. Willisch.
112073	Farne Is. (Northumb.), for Bootham Sch.	7.7.35.	Leith (Midlothian), 9.9.35, by E. Pirie.
112060	Ditto	7.7.35	Southwold (Suffolk), 7.9.35, by E. Jenner.
112996	Skomer (Pembs.), 1.7.34, by R. M. Lockley.		Ile de Batz (Finistère), France, 20.12.35, by L. Cozie.
113944	Mochrum (Wigtown), by Lord Dumfries.	30.6.35.	Largo (Fife.), 17.1.36, by J. Lorrie.
114132	Ditto	30.6.35	Longniddry (E. Lothian), 2.2.36, by A. Purdon.
114064	Ditto	3.7.35	Auldgirth (Dumfries.), 15.2.36, by J. Dickson.
114169	Ditto	30.6.35	Annan (Dumfries.), 28.12.35, by A. Simpson.
114111	Ditto	30.6.35	Silloth (Cumb.), 26.1.36, by J. Allison.
114001	Ditto	3.7.35	Christchurch (Hants.), 19.2.36, by P. Hodges.
114082	Ditto	3.7.35	Exmouth (Devon.), 26.12.35, by M. N. Ford.
112062	Farne Is. (Northumb.), for Bootham Sch.	7.7.35.	Stirling, 11.2.36, by Metro- politan Police.
112079	Ditto	7.7.35	Port Seton (E. Lothian), 5.2.36, by J. Black.

No.	<i>Ringed.</i>		<i>Recovered.</i>
	Gannet (<i>Sula bassana</i>).		
	RINGED AS NESTLINGS.		
105404	Bass Rock, —.9.34, by H. W. Robinson.	Bay of Biscay (47° 13' N., 5° 30' W.), 4.10.35, by G. Belloc.	
114826	Ditto	29.7.35	Laredo (Santander), Spain, 9.10.35, by H. B. M. Consul.
105416	Ditto	9.9.34	C. Blanco, Rio de Oro, W. Africa, —.3.35, by G. Belloc.
118370	Ailsa Craig, 29.7.35, by Lord Dumfries.		Easdale (Argyll), 30.9.35, by D. McQueen.
118482	Ditto	29.7.35	St. Girons (Landes), France, 23.9.35, by F. Gimenez.
118413	Ditto	29.7.35	Mimizan (Landes), France, 9.10.35, by D. Poussade.
114433	Ailsa Craig, 9.8.35, for Rugby Sch.		Larne (Antrim), 4.10.35, by W. Kitson.
112368	Grassholm, 2.7.33, by R. M. Lockley.		Langeness, N. Frisian Is., —.9.35, by V. Johannsen.
112383	Ditto	26.6.33	Quiberon Bay, France, 25.9.35, per Reuter.
112391	Ditto	26.6.33	Santoña (Santander), Spain, —.9.35, by F. Herrera.
115964	Ditto	17.7.34,	Marloes (Pem.), —.1.35, by R. M. Lockley.
	by C. Wontner-Smith.		
115652	Ditto	17.7.34	Sedgwick (Westmor.), 19.9.35, by J. Wakefield.
115186	Ditto	17.7.34	Horten, S. Norway, —.9.35, by R. Jensen.
115834	Ditto	17.7.34	Off Wolf Light (Cornwall), 30.8.35, by F. Richards.
115601	Ditto	17.7.34	Off Dieppe (Seine Inf.), France, 17.9.35, by Nat. Hist. Mus., Paris.
116783	Ditto	17.7.34	Ditto 15.11.35.
115767	Ditto	17.7.34	Off Ushant, France, 11.6.35, by Le Syndic des Gens de Mer.
116863	Ditto	17.7.34	Ditto 22.7.35, by H. B. M. Consul.
115706	Ditto	17.7.34	Penmarch (Finistère), France, 22.9.35, by P. Desbrosses.
115134	Ditto	17.7.34	Bay of Biscay (47° 36' N., 5° 40' W.), 17.9.35, by P. Desbrosses.
116918	Ditto	17.7.34	Contes (Landes), France, 26.7.35, by P. Arné.
115099	Ditto	17.7.34	C. Machichaco (Vizcaya), Spain, 31.10.35, by O. Solaguren.
117872	Ditto	29.6.35,	Lastres (Asturias), Spain, 6.9.35, by Sec. Posito
	for Skokholm Bird Observa- tory.		Pescador.

No.	Ringed.		Recovered.
Gannet (continued).			
RINGED AS NESTLINGS.			
105402	Bass Rock, —.9.34, by H. W. Robinson.	Heligoland, 4.12.35, by Vogelwarte.	
105408	Ditto —.9.34	Ditto 4.12.35.	
113323	Ailsa Craig, 25.8.34, by Lord Dumfries.	Bay of Biscay, 47° 28' N., —.12.35, by P. Arné.	
118633	Ditto 26.7.35	W. Coast, Morocco, 11.12.35, by V. Black.	
118262	Ditto 31.7.35	Off Canary Is., 17.11.35, by J. Vila.	
118743	Ditto 26.7.35	Off C. Blanco, Rio de Oro, 3.2.36, by J. Cristiano.	
118568	Ditto 29.7.35	Off Mauritania, 24.11.35, by J. Vila.	
116794	Grassholm, 17.7.34, by C. Wontner-Smith.	Off Brest (Finistère), —.10.35, by P. Arné.	
115628	Ditto 17.7.34	Off Belle Ile, W. France, 18.1.36, by P. Desbrosses.	
116394	Ditto 17.7.34	Off Lisbon, 24.1.36, by A. Esteveira.	

RINGED AS FULL-GROWN.

113034	Grassholm, 17.7.34, by R. M. Lockley.	Where ringed, 4.8.35, by ringer.
115584	Ditto 17.7.34, by C. Wontner-Smith.	North Sea (53° 48' N., 2° 53' E.), 4.8.35, by Commissaire Maritime, Ostend.

Storm-Petrel (*Hydrobates pelagicus*).

RINGED AS FULL-GROWN.

RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
	Skokholm (R. M. Lockley).		MD.172	26.7.33	18.6.34;
FY.230	16.7.33	13.7.35			29.5.35
FY.240	16.7.33	10.8.35	MH.535	5.7.34	8.8.35
MD.165	26.7.33	6.8.35	MR.540	23.8.34	26.5.35

Manx Shearwater (*Puffinus p. puffinus*).

RINGED AS FULL-GROWN.

RECOVERED AWAY FROM WHERE RINGED.

No.	Ringed.	Recovered.
RW.4236	Skomer (Pem.), 21.6.35, by F. Mitchell.	Woolacombe (Devon.), 26.7.35, by E. Athey.
RV.5541	Skokholm (Pem.), 16.7.34, by C. Wontner-Smith.	Off St. Jean-de-Luz, France, 9.5.35, by <i>Chasseur Français</i> .
RV.5507	Ditto 16.7.34	Comillas (Santander), Spain, 9.9.35, by V. Noceda.
RV.6449	Ditto 19.7.34,	Off Belle Île, West France. —.3.35, by P. Arné.

Manx Shearwater (*continued*).

RECOVERED ON BREEDING-GROUND WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Skokholm (R. M. Lockley).			(Skokholm)		
2 Birds	1930	1931, '32, '33, '34, '35	(Skokholm Bird Observatory).		
1 Bird	1931	1932, '33, '34, '35	18 Birds	1934	1935
4 Birds	1931	1933, '34, '35	Skomer		
1 Bird	1931	1933, '35	(F. J. Mitchell).		
12 Birds	1933	1934, '35			
4 Birds	1933	1935	10 Birds	1934	1935
2 Birds	1934	1935			

Wood-Pigeon (*Columba p. palumbus*).

RINGED AS NESTLINGS.

RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.
RS.1738	Almondbank (Perth.), 17.7.34, by Lord Mansfield.	28.8.35.
RT.6923	Glenorchard (Stirling.), 6.5.33, by J. Bartholomew.	30.8.35.
RT.6925	Ditto 9.5.33.	19.6.35.
RT.5302	Wensleydale (Yorks.), 10.6.33, for Bootham Sch.	—.8.35.

Stock-Dove (*Columba ænas*).

RINGED AS FULL-GROWN.

RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Shipley	(C. Wontner-Smith).		RT.6941	22.4.34	28.7.34 ;
RT.5765	30.7.33	17.3.34 ; 7.4.35	RT.7040	29.4.34	7.4.35 29.7.34 ; 6.4.35

(The last two mates in both years.)

Stone-Curlew (*Burhinus æ. ædicnemus*).

77213	Kelling (Norfolk), 28.5.34, young, by R. M. Garnett.	Hempstead (Norfolk), 15.10.35, by L. Bolden.
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Oyster-Catcher (*Hæmatopus o. occidentalis*).

RS.1920	Almondbank (Perth.), 18.6.34, young, by Lord Mansfield.	Parkgate (Ches.), 13.4.35, by A. Thomas.
25998	Rockcliffe (Cumb.), 13.6.25, young, by R. H. Brown.	Ruthwell (Dumfries.), 1.8.35, by Lord Mansfield.

Lapwing (*Vanellus vanellus*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

AN.5378	Berryhill (Perth.), 5.6.32, for Perth N.H.S.	Luncarty (Perth.), —.5.35, by P. Campbell.
Y.1237	Fenwick (Ayr.), —.5.27, by E. R. Paton.	Adare (Limerick), 11.12.35, by D. Griffin.
T.4562	Dalston (Cumb.), 7.7.28, by R. H. Brown.	Chatton (Northumb.), 23.8.35, by G. Leathart.

No.	Ringed.		Recovered.
	Lapwing (continued).		
	RINGED AS NESTLINGS.		
AR.559	Penrith (Cumb.), —.6.33, by H. J. Moon.	Navan (Meath), 20.11.35, by B. Fitzherbert.	
AS.2541	Shap (Westmor.), 3.6.35, by H. J. Moon.	Appleby (Westmor.), 12.12.35, by F. Hatton.	
AP.820	Kirkby Lonsdale (Westmor.), —.5.32, by H. J. Moon.	Carnforth (Lancs.), 3.9.35, by C. Swarbrick.	
AP.8678	Ditto —.5.33	Lancaster —.7.35.	
AR.8012	Ditto 8.6.34	Portarlington (Queen's Co.), 1.1.36, by R. Kelly.	
R.8163	Ingleton (Yorks.), —.5.30, by H. J. Moon.	Settle (Yorks.), 2.9.35, by R. Green.	
P.8291	Settle (Yorks.), —.6.31, by H. J. Moon.	Poulton-le-Fylde (Lancs.), 11.8.35, by J. Houseman.	
AS.4582	Buxton (Derby.), 29.6.35, by H. J. Moon.	Macclesfield (Ches.), 5.8.35, by C. Hall.	
AR.6471	Wilmslow (Ches.), 21.6.34, by E. Cohen.	Ringway (Ches.), 9.11.35, by W. Hull.	
R.4264	Bonar Bridge (Suth.), 11.5.33, by Mrs. Hodgkin.	Lossiemouth (Moray), 10.1.36, by J. Crosthwaite.	
AP.9585	Glenorchard (Stirling), 4.5.34, by J. Bartholomew.	Thomastown (Kilkenny), 29.1.36, by J. Lalor.	
AR.611	Penrith (Cumb.), —.6.33, by H. J. Moon.	St. Martin's, Guernsey, 23.12.35, by V. Le Maitre.	
AS.7061	Ditto 3.7.35	Ditto 8.2.36, by W. Bonnel.	
U.5021	Ditto —.5.28	Downpatrick (Down), —.1.36, by A. McKee.	
AP.7023	Ditto —.5.33	Swords (Dublin), 21.12.35, by W. Sweeney.	
AN.4089	Ditto —.6.32	Tallagh (Dublin), 24.1.36, by R. Ganly.	
AP.7261	Ditto —.6.33	Wexford, —.2.36, by G. Bradish.	
S.1883	Edenhall (Cumb.), —.5.30, by H. J. Moon.	Kildorrery (Cork), —.2.36, by <i>Cork Examiner</i> .	
AP.4826	Shap (Westmor.), —.6.32, by H. J. Moon.	Clarina (Limerick), —.12.35, by <i>Irish Independent</i> .	
AS.4487	Ditto 19.6.35	Pravia (Asturias), Spain, 4.1.36, by A. Estrada.	
AN.4000	Kirkby Lonsdale (Westmor.), —.6.31, by H. J. Moon.	Balla (Mayo), 26.12.35, by A. Hartley.	
AP.5278	Arnside (Westmor.), 26.6.32, by J. Barnes.	Carlow, 8.1.36, by <i>Carlow Nationalist</i> .	
P.9844	Ulverston (Lancs.), 17.5.32, by H. S. Greg.	Donabate (Dublin), 1.2.36, by F. Cobbe.	
AR.1553	Clapham (Yorks.), 26.5.34, by H. J. Moon.	Croom (Limerick), 4.1.36, by D. Cantwell.	
AP.5540	York, 7.5.33, for Bootham Sch.	St. Médard - en - Jalles (Gironde), France, 24.12.35, by <i>Chasseur Français</i> .	
FJ.315	Rostherne (Ches.), 24.6.34, for Cheltenham Coll.	Skerries Light, Anglesey, 26.1.36, by A. Batchelor.	

No.

Ringed.

Recovered

Lapwing (*continued*).

(b) RECOVERED WHERE RINGED.

AN.243	Glenorchard (Stirling.), 5.6.31,	by J. Bartholomew.	15.6.35
AP.9563	Ditto	29.5.34.	—.6.35
AP.1712	Bollington (Ches.),	5.6.32,	by M. H. Morley. —.6.35

Common Sandpiper (*Tringa hypoleucos*).

GD.22	Loch Nevis (Inverness),	Loch Ewe (Ross.),	3.6.35.
	27.6.34, young, for Mid-	by I. Grant.	
	lothian Orn. Club.		

Redshank (*Tringa t. totanus*).

AR.6564	Langwathby (Cumb.), —.6.34,	Barrow-in-Furness (Lancs.),	
	young, by H. J. Moon.	—.10.35, by J. Mayor.	
ZM.61	Burgh Marsh (Cumb.), 1.6.35,	Cork, 29.12.35, by L. Collins.	
	young, by R. H. Brown.		

Curlew (*Numenius a. arquata*).

RT.6591	Drumashie (Inverness),	Kilkee (Clare), 12.8.35, by	
	28.6.34, young, for Oxford	J. O'Halloran.	
	Orn. Soc.		
400937	Settle (Yorks.), 25.5.35, young,	Hesketh Bank (Lancs.),	
	by H. J. Moon.	2.8.35, by E. Wignall.	
400869	Langwathby (Cumb.), 29.5.35,	Carna (Galway), 1.2.36, by	
	young by H. J. Moon.	P. Tolan.	

Snipe (*Capella g. gallinago*).

FF.384	Glenorchard (Stirling.), 30.5.34,	Where ringed, 2.8.35, by	
	young, by J. Bartholomew.	ringer.	

Woodcock (*Scolopax r. rusticola*).

RINGED AS NESTLINGS.

(a) RECOVERED AWAY FROM WHERE RINGED.

201722	Altyre (Moray.), 6.6.35, for	Elgin, 1.2.36, by W. H. Doig.	
	Brit. Trust Orn.		
200157	Dunphail (Moray.), 1.6.34, for	Newton Stewart (Wigtown),	
	Brit. Trust Orn.	4.1.36, by E. Thompson.	
AS.1468	Glenferness (Nairn), 10.5.35, for	Lethen (Nairn), 9.1.36, by	
	Brit. Trust Orn.	Colonel Campbell.	
203141	Gargunnock (Stirling.), 9.5.35,	Irun (Guipuzcoa), Spain,	
	by J. Bartholomew.	6.11.35, by H. B. M.	
		Vice-Consul.	
AS.1431	Glen (Peebles), 2.5.35, for Brit.	Kenmare (Kerry), —.2.36,	
	Trust Orn.	by B. Aldwell.	
R.9166	Abbeystead (Lancs.), —.6.32,	Camrose (Pembs.), 22.1.36,	
	by H. W. Robinson.	by L. Penn.	
202804	Ardross (Ross.), 1.6.35, for	Ardullie (Ross.), —.8.35, by	
	Brit. Trust Orn.	R. Evans.	
202201	Fochabers (Moray.), 2.5.35, for	Lossiemouth (Moray.),	
	Brit. Trust Orn.	11.10.35, by R. Mackenzie.	
201355	Blacksboat (Moray.), 28.4.35,	Torres Vedras, Portugal,	
	for Brit. Trust Orn.	13.12.35, by J. Martins.	

No.	Ringed.	Recovered.
Woodcock (continued).		
(a) RECOVERED AWAY FROM WHERE RINGED.		
AS.1154	Glenferness (Nairn), 3.6.35, for Brit. Trust Orn.	Lethen (Nairn), 20.12.35, by Col. Campbell.
201228	Kirriemuir (Angus), 15.5.35, for Brit. Trust Orn.	Glamis (Angus), 16.10.35, by G. Fairweather.
201230	Ditto 25.5.35	Bandon (Cork), 22.12.35, by G. Nolan.
AS.925	Ellary (Argyll.), 12.6.34, for Brit. Trust Orn.	Inverneill (Argyll.), 24.12.35, for Lt.-Col. Campbell.
200038	Aberdour (Fife.), 3.5.35, for Brit. Trust Orn.	Glenfarg (Perth.), 2.11.35, by J. Scott.
AR.5538	Aberlady (E. Lothian), 26.4.35, by G. Charteris.	Lammermuir Hills, 12.8.35, by Dr. Showell-Rogers.
AR.5550	Ditto 2.5.35	Duns (Berwick.), 21.12.35, by Lord Home.
202626	Glentrool (Kirkcudbr.), 5.5.35, for Brit. Trust Orn.	Galloway Estate (Kirkcudbr.), 23.8.35, by D. Gale.
201021	Dalry (Kirkcudbr.), 17.6.35, for Brit. Trust Orn.	West Linton (Peebles), 31.8.35, by A. Cowan.
AR.109	The Barony (Dumfries.), 24.5.34, by W. Duncan.	Rivox (Dumfries.), 18.10.35, by G. Wood-Horner.
202006	Floors Castle (Roxburgh), 27.5.35, for Brit. Trust Orn.	Greenlaw (Berwick), 7.11.35, by N. Boxwell.
W.5945	Cartmel (Lancs.), 29.4.27, by Col. Porritt.	Carnforth (Lancs.), 19.9.35, by J. Rossall.
AR.7777	Abbeystead (Lancs.), —.6.35, by H. W. Robinson.	Garstang (Lancs.), 23.12.35, by J. Fitzherbert-Brockholes.
AR.7740	Ditto —.6.35	Bridlington (Yorks.), 5.12.35, by W. Hodgson.
(b) RECOVERED WHERE RINGED.		
AR.5000	Glenferness (Nairn), 3.5.34, for Brit. Trust Orn.	14.9.35.
AS.1478	Ditto 16.5.35.	—.12.35.
201222	Kirriemuir (Angus), 30.4.35, for Brit. Trust Orn.	11.10.35.
AP.0201	Greenloaning (Perth.), 17.7.33, by Lord Mansfield.	21.11.35.
AS.770	Killearn (Stirling.), 22.6.34, for Brit. Trust Orn.	30.8.35.
203017	Touch (Stirling.), 10.5.35, by J. Bartholomew.	26.10.35.
Z.0104	Buchanan Castle (Stirling.), 16.5.24, by R. Stewart.	28.9.35.
AS.673	Dunoon (Argyll.), 8.5.35, for Brit. Trust Orn.	6.9.35.
203000	Duntocher (Dumbarton.), 9.6.35, by J. Bartholomew.	21.11.35.
AR.5554	Aberlady (E. Lothian), 11.8.35, by G. Charteris.	2.9.35.
T.8828	Alnwick (Northumb.), 8.5.29, by Duke of Northumberland.	12.11.35.
AP.381	Ditto 12.5.32.	20.11.35.
AP.295	Abbeystead (Lancs.), —.6.33, by H. W. Robinson.	—.12.35.
AR.2818	Ditto —.6.34.	—.12.35.
200431	Scawby (Lincs.), 23.5.34, for Brit. Trust Orn.	16.12.35.
200440	Ditto 1.5.35.	30.12.35.
202343	Forglen (Banff.), 12.7.35, for Brit. Trust Orn.	31.12.35.
202005	Fermanagh, 12.6.35, for Brit. Trust Orn.	11.1.36.
202008	Ditto 12.6.35.	16.1.36.
AS.1802	Beaulieu (Hants.), 22.4.35, by Lt.-Col. Crispin.	30.1.36.

No.

Ringed.

Recovered.

Sandwich Tern (*Sterna s. sandvicensis*).

RINGED AS NESTLINGS.

AS.5150	Ravenglass (Cumb.), —.6.35, by H. W. Robinson.	Agadir, Morocco, 15.11.35, by <i>Chasseur Français</i> .
AS.5319	Walney I. (Lancs.), 23.6.35, by H. W. Robinson.	Deganwy (Carnarvon), 5.9.35, by N. Burgess.
AR.7599	Ditto 3.6.34	Keta, Gold Coast, W. Africa, 16.6.35, by J. H. Beckler.
AS.5331	Ditto 23.6.35	Accra, Gold Coast, 19.11.35, by E. Symond.
V.4643	Blakeney (Norfolk), 10.7.29, by Mrs. Hodgkin.	Narbonne (Aude), France, 21.7.35, by A. Chappellier.
AS.6541	Salthouse (Norfolk), 12.6.35, by E. Cohen.	Pontevedra (Galicia), Spain, 29.9.35, by B. Tafall.
AP.7712	Ditto 8.6.33, by R. M. Garnett.	Rochefort (Charente Inf.), France, 24.9.35, by <i>Chasseur Français</i> .
AS.4207	Ditto 25.6.35	Los Alcázares (Murcia), Spain, 3.11.35, by A. Boada.
AR.4406	Ditto 15.6.34	Accra, Gold Coast, 14.10.35, by P. Rutherford.
AR.9473	Ditto 12.6.35	Keta, Gold Coast, 26.11.35, by H. Ellershaw.
AS.5325	Walney I. (Lancs.), 23.6.35, by H. W. Robinson.	Cape Coast, Gold Coast, 25.1.36, by W. Kelly.
AR.9454	Salthouse (Norfolk), 12.6.35, by R. M. Garnett.	Keta, Gold Coast, 12.12.35, by J. Allen.
AR.9484	Ditto 12.6.35	Ditto 8.12.35, by S. Edekor.
AS.4047	Ditto 12.6.35	Ditto 20.12.35, by E. Gadzekpo.
AS.6714	Ditto 12.6.35, by E. Cohen.	Sekondi, Gold Coast, 7.1.36, by E. Symond.
AS.6445	Ditto 12.6.35	Accra, Gold Coast, 5.1.36, by J. St. John Yates.

Common Tern (*Sterna h. hirundo*).

RINGED AS NESTLINGS.

ND.683	Walney I. (Lancs.), 12.6.32, by H. W. Robinson.	Where ringed, 29.7.35, by ringer.
CF.865	Blakeney (Norfolk), 20.7.33, by Mrs. Wilson.	Dunkirk (Nord), France, 1.9.35, by J. Brice.
FJ.160	Ditto 3.8.35	Bray-Dunes (Nord), France, 4.10.35, by Miss Morris.
FD.994	Dungeness (Kent), 11.6.33, by P. Allen.	Kelling (Norfolk), 12.7.35, by R. M. Garnett.
U.4306	Abbotsbury (Dorset), 3.7.28, for Oxford Orn. Soc.	Bridport (Dorset), 31.5.36, by L. Brown.

Black-headed Gull (*Larus r. ridibundus*).

RINGED AS FULL-GROWN.

RV.7820	Littleton (Middx.), 4.2.35, by P. Hollom.	North Woolwich, London, 16.7.35, by Spencer & C.
RV.7927	Ditto 8.2.35	Jonstorp (Scania), Sweden, 30.8.35, by F. Perssan.

No.	Ringed.	Recovered.
Herring-Gull (<i>Larus a. argentatus</i>).		
RINGED AS NESTLINGS.		
AB.4120	St. Abb's Head. (Berwick.), 13.7.35, by W. Serle and D. Bryson.	Cleethorpes (Lincs.), 14.10.35, by G. Taylor.
AB.3080	Puffin I., N. Wales, 2.7.35, by L. Monks.	Dee Estuary (Ches.), 2.12.35, by J. Robinson.
402050	Skokholm (Pem.), 14.7.34, by R. M. Lockley.	Where ringed, 30.6.35, by ringer.
AB.1013	Dungeness (Kent), 9.6.35, by B. Brooker and E. Cawkell.	Bray-Dunes (Nord), France, 7.8.35, by Office des Pêches Maritimes.
AB.1007	Hope Cove (Devon.), 22.6.35, by S. Baron.	Brixham (Devon.), 17.10.35, by W. Friend.
AB.1471	Ditto 12.6.35	Bridport (Dorset), 18.9.35, by P. Roper.
400150	Ballintoy (Antrim), 29.6.35, by T. Kerr.	Belfast (Antrim), 22.8.35, by J. Ferguson.
400277	Ditto 29.6.35	Fleetwood (Lancs.), 1.11.35, by W. Pye.
400103	Giant's Causeway (Antrim), 11.6.35, by T. Kerr.	Armoy (Antrim), 28.11.35, by T. Hanna.
400115	Ditto 11.6.35	Leswalt (Wigtown), 20.10.35, by A. Tulton.
AB.4171	St. Abb's Head (Berwick.), 12.7.35, by W. Serle and D. Bryson.	Hull (Yorks.), 6.12.35, by Mrs. Hancock.
RINGED AS FULL-GROWN.		
400389	Littleton (Middx.), 4.2.35, by P. Hollom.	Tromsø, Norway, —.6.35, by J. Thomassen.

Lesser Black-backed Gull (*Larus f. graellsii*).

RINGED AS NESTLINGS.

AB.4112	Hoy, Orkney, 24.7.35, by W. Serle and D. Bryson.	Dornoch (Suth.), 18.10.35, by T. Kennedy.
AB.4133	Ditto 24.7.35	Dunphail (Moray.), 4.11.35, by D. McLeod.
AB.4144	Ditto 24.7.35	Gravelines (Nord), France, 7.11.35, by Office des Pêches Maritimes.
AB.3083	Dunnet Head (Caithness), 3.7.35, for Miss Staunton.	Reay (Caithness.), 15.9.35, by Capt. Taylor.
AA.0270	Rockcliffe (Cumb.), 7.7.35, by R. H. Brown.	Preston (Lancs.), 20.9.35, by H. Marsden.
402301	Foulshaw (Westmor.), 27.7.34, by H. W. Robinson.	Arcachon (Gironde), France, —.9.35, by Dr. Lamoureux.
AB.2122	Walney I. (Lancs.), 9.6.35, by H. W. Robinson.	Lancaster, 28.9.35, by T. Holmes.
AB.2114	Ditto 9.6.35	Garstang (Lancs.), 23.11.35, by E. Sherriff.
AB.2108	Ditto 9.6.35	Liverpool (Lancs.), 18.10.35, by E. Hardy.
AB.2212	Ditto 9.6.35	Warrington (Lancs.), 13.12.35, by A. Woods.

No.

Ringed.

Recovered.

Lesser Black-backed Gull (*continued*).

RINGED AS NESTLINGS.

400588	Ditto	17.6.34	Staleybridge (Ches.), —.9.35, per <i>The Field</i> .
AB.2444	Ditto	30.6.35	Casablanca, Morocco, 17.10.35, per <i>Daily Mail</i> .

Great Black-backed Gull (*Larus marinus*).

404021	Hoy, Orkney, 22.7.35, young, by W. Serle and D. Bryson.	Redcar (Yorks.), 28.9.35, by S. Baxter.
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Razorbill (*Alca torda*).

RV.7052	Skokholm (Pem.), 15.7.34, ad., by R. M. Lockley.	Where ringed, 10.7.35, by ringer.
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Northern Guillemot (*Uria a. aalge*).

RT7979	I. of May, Scotland, 6.7.35, young, for I. May Bird Obs.	Stavanger, Norway, —.9.35, by S. Espeland.
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Southern Guillemot (*Uria a. albionis*).

RV.6568	Skomer (Pem.), 20.7.34, young, by C. Wontner-Smith.	Bergen, Norway, 6.10.35, by S. Johnsen.
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Puffin (*Fratercula a. grabæ*).

RINGED AS FULL-GROWN.

RECOVERED WHERE RINGED.

No.	Ringed.	Recovered.	No.	Ringed.	Recovered.
Orkney	(H. W. Robinson).		CA.426	—.5.30	—.7.35
AB.646	—.6.28	—.7.35	CA.889	—.6.34	—.7.35
CA.401	—.6.29	—.7.35	CA.891	—.6.34	—.7.35
CA.403	—.6.29	—.7.35	CA.892	—.6.34	—.7.35

Land-Rail (*Crex crex*).

No.	Ringed.	Recovered.
Dunleath Private.	Downpatrick, Ireland, 16.7.34, young, by Lord Dunleath.	Crowborough (Sussex), 15.8.34.

Moor-Hen (*Gallinula ch. chloropus*).

AM.687	Glenorchard (Stirling), 12.10.34, ad., by J. Bartholomew.	Where ringed, 16.8.35, by ringer.
RT.8029	Downham Market (Norfolk), 23.6.33, young, by W. R. Harrisson.	Ditto 1.6.35.

Coot (*Fulica a. atra*).

Orielton 308	Orielton (Pem.), transported to and released Tenby [12 m. E.] 19.11.35, by S. Greenslade.	Ludlow (Salop), 29.12.35.
Orielton 327	Ditto transported to and released St. Clears [25 m. E.], 21.11.35, by S. Greenslade.	Where ringed, 17.12.35, by ringer.
Orielton 328	Ditto	21.11.35 Ditto 28.12.35.

Kittiwake (*Rissa t. tridactyla*).

RT.5386	Farne Is. (Northumb.), 25.6.34, young, by Mrs. Hodgkin.	Heligoland, 29.12.35, by Vogelwarte.
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STARLINGS FIGHTING FOR NESTING SITES.

BY

GEORGE MARPLES.

SOME account of two nesting-site combats between Starlings (*Sturnus v. vulgaris*) may be of interest. The first of these took place on May 4th, 1935, the other on January 26th, 1936.

My Starling box has two compartments, one facing south, the other north. The south chamber was occupied, in 1935, by a pair of Starlings sitting on a full clutch of eggs, when, on May 1st, the north side was appropriated by a solitary male. This bird quickly developed a curious trick of perching in a nearby oak tree until he saw one of the occupants of the south chamber fly down to go in. He would then swoop and enter the north hole. This he did many times each day, contriving on every occasion to go in at his entrance at exactly the same moment as the other bird went into its hole, the perfect synchronization being quite uncanny. Notwithstanding this repeated concurrence the three birds remained on friendly terms.

On the third day, much to the annoyance of the solitary Starling, another arrived and betrayed a strong interest in the north hole with the result that, accompanied by shrieks, many determined chases took place.

The next day this rivalry for the nesting site culminated in a fierce struggle, the two birds joining battle and falling, locked together, to the ground. Here the one beneath held the upper one with a clutching claw on each side of his breast while the upper one, gripping his rival by the flanks, lunged viciously with his beak at its breast, this violent behaviour being emphasized by loud outcries. Fearing serious consequences I hastened to part them, but so intent were they on their contest that I was able, almost, to pick them up. However they broke away and flew to a neighbouring tree, only to get into a clinch again and fall to the ground conjoined and struggling. My second approach caused them to part and there ensued a stirring pursuit. Round and round the garden many times they flew, uttering piercing calls. They then began to mount, circling above the garden, rising higher and higher until they attained such an altitude as to appear as mere specks. During this chase they seemed to remain about a yard or two apart, though at times this space was increased or decreased, indeed, three times they appeared to collide. When the chase had continued for over twelve minutes by the watch the birds slanted down several times, following each

descent by circling at a lower altitude until, after two minutes more, with a final slant, they alighted a yard apart in the oak tree. Here both birds preened, and one jerked its tail in an excited manner. Just then one of the occupants of the south compartment swooped to its hole; immediately a combatant did the same, entering the north hole simultaneously with the first bird, being followed closely by its rival. Inside the chamber the struggle was resumed with clamour and violent rocking of the box. After some time I closed the opening and captured the fighting birds to find that both were males. Then, after placing a ring on the leg of each for identification, I released them. Approximately one hour later one of the birds wearing a white celluloid ring returned and, sitting on the perch, sang and waved his wings, thus announcing his success. The other was not seen again.

In 1936 the nesting box was visited for the first time on January 22nd by a male Starling, "A", which, after occupying the perch and popping in and out of the north hole many times, stayed from 9.30 a.m. for about fifteen minutes, and was not seen again that day.

The next day "A" arrived at 9.15 a.m. and repeated the first day's performance. A little later he was joined by another male bird, "B", which copied the actions of the other. As the new-comer was slightly lame identification was easy.

The 24th saw the first bird, "A", on the perch at 8.24 a.m., behaving as on the previous occasions with the addition of song. Bird "B" did not put in an appearance and "A", departing at 8.51 a.m., did not return.

At 9.40 a.m. on the 25th "A" appeared and "B" directly afterwards. Both perched on the box, going in and out frequently, but neither bird sang.

On the morning of the 26th, apparently, it became necessary to settle the ownership of the nesting site. Both birds came shortly after 9.0 a.m. and sat near together on the perch, in the shrubs, or on the oak. Always if one moved the other followed, perching a foot or so away. In this manner they passed some time, often visiting the box, going in and out of the hole, exactly as though they were paired. But soon several short scuffles took place, all of them initiated by the lame one. Bird "A" sang often, and continuously jerked his tail, but not so the other. By 9.50 the agitation of "A" had been communicated to "B", for both were jerking their tails. Presently, as they moved uneasily from box to tree and back again, further stimulated, both began to flick their wings, and "B" sang snatches of song. This duet of singing, flicking

wings and jerking tails, indicative of a growing excitement, continued as they frequently changed their perch or entered and left the hole until, at 11.21, unable to endure each other's presence any longer, they broke into actual hostilities. Gripped together, struggling desperately, they fell to the ground. The lame bird, underneath, received a quick succession of savage blows from the beak of "A", all seemingly aimed at the eyes. Whenever possible "B" retaliated in kind, and a ding-dong battle continued. Quiet settling on them after a while, the under bird was seen to have secured a tenacious grip on the leg of the other. Peckings, hard and often, were resumed, continuing for some time, then beaks were interlocked. Shortly afterwards, during an unguarded moment, "B" slipped from beneath its opponent and dashed off, closely pursued. This heralded the end, for in a few moments "A" was back on the perch singing with abandon, feathers a-bristle, wings flapping wildly, victorious. He was "telling the world". Many times he went in and out of the hole, until at 11.49 he flew off to feed. Mindful of his newly-captured nesting site he returned at intervals, singing on the perch and entering the box. The jerkings and flickings were no longer present, the excitement had died down. He left, finally, about 1.30. The lame bird did not appear again on the day of its defeat, nor has it been seen since. A male bird, presumably the victor, continues still in lonely possession of the nesting box.

NOTES

CONTINENTAL JAY IN ESSEX.

IN view of the recent notes concerning the influx of Jays into Hampshire during the autumn of 1935, it may be of interest to report that in the Layer Marney district—between Colchester and Maldon, Essex—they have been unusually scarce this winter (October, 1935, to January, 1936). In a one-hundred-and-thirty-acre wood the winter population was estimated as being one-fifth of the normal.

Throughout September and October there is, each year, a certain amount of "movement" amongst the Jay population in this part of Essex, and birds may at times be seen passing over far out of gun-shot on their way to neighbouring woodlands. At no time, however, have I observed any great increases in numbers, such as have been witnessed recently in Hampshire.

All the Jays killed here have been carefully examined with a view to finding the Continental form, *Garrulus g. glandarius*, but so far only one has been discovered (1934) (*antea*, Vol. XXVIII., p. 276). One shot, however, at Colne Engaine, Essex, in December, 1935, was picked out as being of this form, and Mr. N. B. Kinnear has kindly confirmed the identification.

JAMES W. CAMPBELL.

NOTES FROM HAMPSHIRE AND DORSET.

THE following records were obtained in 1935 and the early part of 1936 by K. D. Smith, sometimes in company with K. B. Rooke. The majority refer to the coast, at Keyhaven and Beaulieu, Hants, and Wareham, Dorset; where any other locality is mentioned, the county is given.

MARSH-WARBLER (*Acrocephalus palustris*).—K. D. S. watched one singing, at close quarters, at Keyhaven on May 19th, 1935, an early date. This species is rare in Hants.

RUFF (*Philomachus pugnax*).—One at Beaulieu, January 26th, 1936, on the same day as a Black-tailed Godwit and Greenshank (K.D.S.).

TEMMINCK'S STINT (*Calidris temminckii*).—On May 12th, 1935, K.D.S. flushed a party of four Temminck's Stints from a muddy, disused salt-pan on Keyhaven Marsh. They were extremely tame, and for at least an hour he was able to watch them at a range of only a few yards. When flushed, they would tower high into the air before flying in a definite direction. Although they flew together, their flight was not

well-ordered, as it is with most small waders, and on descending they would often separate and shoot headlong to earth, to rejoin again when this was reached. Their call could only be described as a succession of rippling notes, quite unlike that of the Little Stint, and it was usually uttered as they rose from the ground. They seemed definitely to prefer marshy pools to the tide-line.

When at rest their resemblance to minute Common Sandpipers (*Tringa hypoleucos*) was most striking, particularly with regard to the under parts. In flight the broad white sides of the tail contrasted well with the dark centre, and the habit, on landing, of expanding the tail, showed to advantage the pure white outer feathers. Their legs were tinged with brownish-yellow.

On May 25th, K.D.S. again watched a Temminck's Stint in the same place, and was able to confirm his former notes.

ICELAND REDSHANK (*Tringa totanus robusta*).—A Redshank picked up dead near some telegraph wires at Beaulieu, on January 12th, 1936, appeared to us to belong to this race. It was sent to Mr. H. F. Witherby, who considers it too large for a Common Redshank, and within the range of the Iceland race. It was an adult female, with the following measurements: wing 164, tarsus 48, and bill 44.5 mm. This race has not previously been identified in Hampshire.

SPOTTED REDSHANK (*Tringa erythropus*).—One at Keyhaven, April 22nd, 1935 (*antea*, p. 30). On July 13th, K.D.S. saw two adults in full summer plumage at Beaulieu, an early date for an Arctic nester on return passage. On July 21st, one seen in the same place was apparently in full moult; on the 27th two were present, changing into autumn plumage. These birds were still there on July 31st (K.D.S. and K.B.R.), and K.D.S. saw another there on September 15th. On January 25th, 1936, K.D.S. heard one calling repeatedly on Holton Heath Marshes, Poole Harbour, Dorset. Bad weather conditions and light made it impossible to see this bird, but there was absolutely no doubt about its distinctive call. This is the first record of one in winter in Dorset.

GREENSHANK (*Tringa nebularia*).—A wintering bird was seen at Beaulieu on December 15th. Often seen on subsequent visits during December, 1935, January and February, 1936. Two seen on December 22nd, 1935, and February 2nd, 1936. On January 19th, 1936, K.D.S. saw three on the Newtown Marshes, Isle of Wight.

GREY PHALAROPE (*Phalaropus fulicarius*). Two were seen in Christchurch Harbour, December 20th, 1935, and reliably reported to the Revd. F. C. R. Jourdain. Rare in winter.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—There have been references recently to an increase in the visits of this species, and to show that what was once considered a rarity was a fairly common migrant in this district in 1935, the records for the year are given in full.

First noted in spring at Keyhaven on May 12th. Two at Wareham, May 18th, four on the 24th; one, Keyhaven, May 25th and June 2nd; eight at Wareham on June 20th. Six at Beaulieu on July 13th and 14th, and three (in moult) on the 21st; ten there on July 27th. Twenty-two at Wareham, July 29th; one on the 30th; eight at Beaulieu, July 31st. Eight at Wareham on August 16th, one at Beaulieu on the 18th; on the 20th, at Wareham, there were thirty or more, on the 24th between seventy and a hundred, and twenty-seven there on the 31st. One at Keyhaven, September 15th; about forty at Wareham on the 29th, and one on October 12th.

In addition to the above, K.D.S. saw one at Beaulieu on January 26th, 1936.

K. D. SMITH.

K. B. ROOKE.

ROLLER IN YORKSHIRE.

MR. E. SCOTT, gamekeeper, at Grinkle Park, Yorkshire, thought he heard a Jay calling in "Starvation Wood", on June 11th, 1931; when he got to the tree a bird flew out, which he shot. Soon afterwards he told me he had shot a Roller, but I was not able to see the bird until quite recently. I find he has it well set up in a case, and it is undoubtedly a fine specimen of the Roller (*Coracias g. garrulus*). I think this occurrence is worth putting on record. W. S. MEDLICOTT.

[Eighteen occurrences are given in Nelson's *Birds of Yorkshire* (1907), the last being in 1901. Several were in July and two in June.—EDS.]

THE COURTING HABITS OF THE KINGFISHER.

IN my article on the habits of the Kingfisher (*Alcedo a. ispida*) in *British Birds*, XXVIII., pp. 295-301, I was able to give only a very short summary of the courting habits of this species, and I propose now to describe these more fully.

After a fairly mild winter Kingfishers may be seen chasing each other through the woods and bushes bordering the stream quite early in the year; sometimes as early as February, but usually towards the end of March and the beginning of April. Late-nesting birds may, however, be seen courting at a much later date. The nuptial display is nearly always carried on in the immediate vicinity of the nesting bank, though on rare occasions I have seen it nearly half a mile from the nesting site.

Usually only a pair, but sometimes five, six or even seven birds, are to be seen chasing each other at the one time with the utmost vehemence—most of the birds uttering the ringing call note of “*Chi-kee*”, while quite often the song-like notes of “*Trip*” and “*Treep*” are uttered by a stationary Kingfisher.

The courting birds often fly to a considerable height and frequently perch in the loftiest of trees. An offering of a small minnow or stickleback, or similar delicacy, by the cock to the hen has only been noticed by me on one or two occasions. The fish is offered to the hen with outstretched neck and lowered wings, the hen in turn seizes the fish and swallows it with little or no ceremony, both birds all the while giving vent to an undercurrent of nervous call notes.

Since writing the aforementioned article I have had the opportunity of seeing “bill-fencing”, but whether or not this is connected with courtship only further and more extensive investigation can decide.

PHILIP A. CLANCEY.

NUMBERS OF VELVET-SCOTER ON SUSSEX KENT COAST.

THERE has evidently been a great increase of Velvet-Scoters (*Oidemia f. fusca*) within recent years, in Rye Bay, where they are now of regular occurrence in considerable numbers. For some years past I have noticed flocks there, but it was not until last winter that I attempted to get any idea of their numerical strength. On November 30th, 1934, there were about 2,000 Scoters on the sea off the Midrips, and roughly 75 per cent. of the birds that flew or flapped their wings proved to be Velvets. On February 17th, 1935, I estimated there were about 6,000 Scoters along three miles of the Camber Midrips coast, and all that I saw flying or flapping their wings were counted. Of the 242 birds identified in this way, 105 (43 per cent.) were Velvet, and 137 (57 per cent.) were Common Scoters (*Oidemia n. nigra*). On April 21st, 1935, 7 were Velvet- and 35 Common. On November 3rd, 1935, 4 were Velvet- and 101 Common. On January 25th, 1936, along the same stretch of coast, there were about 1,500 Scoters; 80 were identified, and of these 38 (47.5 per cent.) were Velvet- and 42 (52.5 per cent.) were Common.

Some notes which Mr. H. G. Alexander has kindly sent me are very interesting as showing the status of the bird here ten to twenty years ago. In March, 1914, and again in October and November of the same year, he saw scores of Common Scoters but only a few Velvet-Scoters, and on some days none. In January, 1915, there was a great oil “wreck” of Scoters,

and Velvets formed about 10 per cent. or 15 per cent. of the birds affected. The following year, on January 19th, he estimated that 5,000 Scoters, of which one in ten were Velvet-, went south-west past Dungeness point. On January 7th, 1917, there was a fair number of both species passing the point, and Velvet- probably exceeded the Common. This, however, is the only one of his older records in which the Velvet-Scooter is given as anything like so numerous as the Common.

P. A. D. HOLLOM.

RED-NECKED GREBE IN KENT.

ON January 16th, 1936, I found, on the beach at Greatstone, Kent, the rather decomposed body of a Red-necked Grebe (*Podiceps g. griseigena*), and as the species is rarely recorded in the county this may be worth noting.

R. S. PITCHER.

SHAG IN FRESH WATER INFESTED WITH PARASITES.

THE occurrence of a Shag (*Phalacrocorax a. aristotelis*) in fresh waters seems to be sufficiently uncommon to warrant attention, more especially when there is evidence that the bird was actually living and feeding there. On February 2nd, 1936, one of these birds was picked up on the foreshore of the River Thames, at Fulham, in a moribund and bedraggled condition. Its plumage was soaked with fuel oil, of which quantities had been noticed on the river during the preceding two days, and despite attempts to clean it the bird died. The alimentary canal contained no food, but among various other parasites there was a large mass of tapeworms in the intestine, consisting principally of *Ligula intestinalis*, but with two specimens of *Schistocephalus solidus*. Both these worms have, as normal intermediate hosts, freshwater fishes, and the inference accordingly must be that the bird was feeding in the river. The fact that some of the *Ligula* were showing signs of sexual maturity, whilst others were quite immature, indicates that this type of food had been taken for at least a day or two. Dr. Baylis, to whom I am indebted for the identification of the worms, has already pointed out that worms derived from freshwater fish can induce fatal results in birds which normally subsist entirely on marine fish (*British Birds*, XXVIII., p. 189 (1934)). It is by no means impossible that these parasites, for which the Shag would not be expected to have a tolerance, may have been the principal cause of death, though undoubtedly the fuel oil was a contributory factor.

H. W. PARKER.

REDSHANK DISPLAYING IN DECEMBER.

ON December 13th, 1935, a Redshank (*Tringa totanus*) was seen persistently courting and displaying before another

bird at Kendal, Westmorland. All the usual display was noted, and watched for about half an hour.

Persistent chase on the part of the male caused the birds to be out of sight at times : no actual mating was observed.

MARIANNE MONRO.

[Attention may here be drawn to a recent description (*Naturalist*, 1935, pp. 241-243) of the nuptial display of the Redshank by S. Smith and G. R. Edwards, illustrated with sketches taken from a film by Mr. Edwards.—EDS.]

SPOTTED REDSHANKS IN KENT IN DECEMBER.

At Grain, on the Thames Estuary, with Mr. J. E. Roberts, I observed four Spotted Redshanks (*Tringa erythropus*) on December 15th, 1935. When first seen they were feeding with about twenty Common Redshanks (*T. t. totanus*), their greater height being distinctly noticeable when both species were together on firm ground. On close approach the Common Redshanks flew off together, while the four Spotted Redshanks waited a few seconds before flying in the opposite direction. In flight there was no sign of the white border on the wing which is so conspicuous on Common Redshanks. In general plumage they were but little darker than the Common Redshanks, though the under-parts may have been duskier.

RICHARD C. HOMES.

SCARCE BIRDS AT THE ISLE OF MAY.—The Midlothian Ornithological Club, in an account (*Scot. Nat.*, 1935, pp. 125-134) of the working of their large migration trap, and observations made, on the Isle of May from March 30th to June 2nd, 1935, note the unusual birds mentioned below.

The Club is very anxious to ensure a sequence of observers during both the spring and autumn migration periods this year, and we have been asked to state that any observer who is inclined to visit the island for this purpose should write to the Honorary Secretary, Mr. Frank Elder, at 41, Fountainhall Road, Edinburgh, for particulars.

ORTOLAN BUNTING (*Emberiza hortulana*).—One on May 30th and 31st.

RED-BACKED SHRIKE (*Lanius c. collurio*).—One May 24th to 26th, and one May 30th.

NORTHERN WILLOW-WARBLER (*Phylloscopus t. evermanni*).—One on May 4th.

BLACK REDSTART (*Phœnicurus o. gibraltariensis*).—One or two on seven occasions between April 8th and 22nd.

HOODED CROWS IN SURREY.—Mr. H. E. Pounds informs us that he observed two Hooded Crows (*Corvus c. cornix*) in the north-east Surrey hills, in the Farleigh district, on October 24th and 31st, 1925, and on October 20th, 1927. The bird is a scarce visitor to Surrey.

WAXWINGS IN HAMPSHIRE, NORTHUMBERLAND AND DURHAM.—The Rev. F. C. R. Jourdain saw a Waxwing (*Bombycilla garrulus*) at Winkton, near Christchurch, on February 9th, 1936.

The following are recorded in *The Vasculum* (1936, pp. 36-7): Northumberland—two near Berwick, November 5th, and one November 21st, 1935; four near Rowland Gill, November 13th, increased to nine on 16th, only one on 19th; two at Stocksfield, November 24th, five on 25th and two on 27th; Durham—three near Thornley, November 12th.

LATE STAY OF SPOTTED FLYCATCHER IN ESSEX.—Mr. R. Warren informs us that he frequently saw, between October 11th and 17th, 1935, a Spotted Flycatcher (*Muscicapa s. striata*) on the roof of a house at Brentwood.

BLACKCAPS IN WINTER IN HEREFORDSHIRE AND SUSSEX.—Lieut.-Colonel C. M. Thornycroft informs us that he had a female Blackcap (*Sylvia atricapilla*) feeding at his bird table at Breinton in the first two weeks of January, during which period he saw the bird at very close quarters on four occasions and that it has since come to the table daily.

Mrs. E. Wolley-Dod also states that she observed a Blackcap visiting her "bird-table" at Mayfield on January 22nd, 1936, and for about a week after that date.

SCAUP-DUCK IN SURREY.—Mr. B. D. Moreton informs us that he saw a female Scaup-Duck (*Nyroca marila*), of which he sends us a good and full description, on a large pond at Godalming, Surrey, on January 11th, 1936.

SHAG IN SURREY.—Mr. E. G. Pedler states that he saw two Shags (*Phalacrocorax aristotelis*) at Barn Elms Reservoir on January 20th, 1936. On the following day only one was present and this was also watched by Mr. Holte Macpherson.

BLACK-NECKED GREBE IN SUSSEX.—Mr. E. M. Cawkell informs us that on January 1st, 1936, he saw, at Great Sanders Reservoir, Sedlescombe, Sussex, and watched at close range, for some forty minutes, a Black-necked Grebe (*Podiceps n. nigricollis*). The bird is by no means common in east Sussex.

BLACK-TAILED GODWITS IN DEVON AND CORNWALL.—The Rev. F. L. Blathwayt writes that in connexion with Colonel Byne's note (*antea*, p. 291) he visited the Exe estuary on October 12th, 14th and 15th, and during that period found quite thirty Black-tailed Godwits (*Limosa limosa*) present.

Mr. K. D. Smith states that he saw a single bird of this species near Wadebridge, north Cornwall, on November 11th, 1935.

REVIEW.

A Pocket-Book of British Birds. Edited by Charles A. Hall, F.R.M.S.
(A. & C. Black). 63 coloured Plates. 5s. net.

THE title of this book is very misleading as one would expect to find in such a book a description or at least some mention of all the commoner British birds. This is not so, only the sixty-five species figured being referred to at all. So that if the beginner sees a Hawk he can find here only the Kestrel; there is no mention of any other Hawk, nor is there of any Owl but the Tawny, any Woodpecker but the Great Spotted, nor any Tern but the Common. He will have no idea there are such birds as the Blue, Coal- or Marsh-Tits, or Corn-, Reed- or Cirl Buntings, or Swallow or Martin, and so on throughout the list. We cannot see that any useful purpose can be served by a book so incomplete.

The illustrations were taken originally from Dresser's *Birds of Europe* and were published in 1907 in a volume by the late J. L. Bonhote entitled *Birds of Britain*. Mr. Bonhote's original text of those birds selected to be illustrated is here reproduced in a condensed form.

LETTERS.

THE MOVEMENTS OF SEA-BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—I was very interested in Mr. H. G. Alexander's letter on the movements of sea birds at Dungeness (*antea*, pp. 298-9), because I watched a considerable movement of divers there on January 25th, 1936. I first reached the coast at Camber, and as the number of divers flying past in the first few minutes seemed unusually large, I kept a note of all seen. The majority were following the coast westwards about half-a-mile out to sea, at no great height above the water. Occasionally one would settle on the water, or rise from it, and all those identified on the water were Red-throated Divers (*Colymbus stellatus*).

From Camber I went to the coast east of Dungeness, about a mile north of the point (the coast here runs north and south), and again there was a succession of divers flying past, this time going south, so that they were evidently following the coastline strictly. At Littlestone they were much farther out and scarcely visible except through a telescope. The numbers seen were as follows:—

	Time.	Minutes.	Flying west.	Flying east.
Camber	10.50/11.5 a.m.	15	32	5
Midrips	11.12/11.32	20	31	8
.. ..	11.50/12.30	40	23	3
			Flying south.	Flying north.
One mile north of Dungeness point	1.08/1.23 p.m.	15	34	—
Littlestone	1.35/1.36	2	9	—
One mile north of Dungeness point	1.45/2.00	15	44	—
.. ..	2.00/2.40	40	13	1
.. ..	2.40/3.30		—	—
			186	17
			—	—

The movement virtually ceased about 2 p.m., two hours after high water. How long it had been in progress before I arrived I am, of course, unable to say, but for at least three hours the divers were passing at the rate of 90 or 100 an hour. For the most part they were flying singly, but sometimes there were four or five together.

The day was mild; light clouds and some sun, with a moderate south-westerly wind, insufficient to raise "white horses".

P. A. D. HOLLOW.

SOUNDS PRODUCED BY LITTLE OWL.

To the Editors of BRITISH BIRDS.

SIRS,—I am interested in Mr. H. G. Alexander's reference to a faint "snoring" note of the Little Owl, as being probably the summer note of the bird (*antea*, p. 296). I think that the sound alluded to must be what I am accustomed to describe as the "deep-breathing" sound of the bird. It resembles the sound produced by the exhalation of air by a person in deep sleep, and is quite unlike a snore. My experience has led me to think that it is given by young birds in their first summer, but I may be mistaken. We once located the sound to a branch on which were two young Little Owls. The note is extremely ventriloquial and is usually very difficult to follow to its source. Though usually heard only from June to August, I have one record of it for October and November, 1928. It is given throughout the day but, in my experience, also after dusk for hours at a time. I do not hear it every year nor from all places frequented by Little Owls.

A. HIBBERT-WARE.

THE TIME OF SINGING OF THE GRASSHOPPER-WARBLER.

To the Editors of BRITISH BIRDS.

SIRS,—Mr. B. J. Ringrose's interesting note on the Grasshopper-Warbler (*Locustella n. naevia*) in the New Forest (*antea*, pp. 287-8) does not, perhaps, give sufficient consideration to the fact that with many, though by no means all, males of this species daytime singing is the exception rather than the rule. He has a curiously high number of singing records between 1 and 3 p.m., but dawn or evening visits are really needed to establish whether the particular individual is a breeder or a passage-migrant; visits later in the day can sometimes give a very false impression.

As an example: I crossed the same corner of a Surrey Greensand heath (fairly dry, co-dominant *Calluna* and *Molinia caerulea*) several times a week between 10 and 11 a.m. during the spring of 1934. For the week commencing May 7th I heard a male Grasshopper Warbler sing every time I passed, but I did not hear him again until July 18th. I should certainly have been tempted to put this bird down as two passage-migrants had I not discovered the nest on June 5th by taking a short cut and flushing the female off her hard-set eggs.

H. Eliot Howard (*The British Warblers*, Vol. II.) has written of this species: "Until pairing has taken place the song is almost incessant morning and evening, rare during the daytime, more frequent at night; afterwards, and until the young are able to take care of themselves, it almost ceases, until it becomes a mere apology of the song of the mating season, often reduced to a few crackling notes, heard on a hot afternoon or during the first hour or so of dawn. To this partial cessation of song may possibly be traced the belief that in certain districts the birds do not stop to breed, but are only to be found on their way to their breeding quarters."

L. S. V. VENABLES.

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CONTENTS OF NUMBER II, VOL. XXIX., April 1, 1936.

	PAGE
Young Rooks, their Survival and Habits. By J. P. Burkitt ...	334
The "British Birds" Marking Scheme. Progress for 1935. By H. F. Witherby	339
Birds of Inner London. By A. Holte Macpherson	345
Notes from Reservoirs and Sewage Farms :—	
Altrincham Sewage Farm, Cheshire, and Staffordshire Reservoirs. By A. W. Boyd	349
Bittell Reservoirs, Worcestershire. By H. G. Alexander ...	352
Barrow Gurney Reservoir, Somerset. By H. Tetley	354
Notes :—	
Mallophaga on Sickly Birds (G. B. Thompson)	356
Bullfinches in a Flock (Mrs. H. Rait Kerr)	357
Bramblings in Inner London (D. Seth-Smith)	357
Common Buzzard in Surrey (H. E. Pounds)	357
Southern Cormorants in Dorset, Suffolk, Sussex and Kent (H. F. Witherby)	358
Status of Land-Rail in Kent (Rev. J. R. Hale)	359
Short Notes :—	
Crossbills Breeding in Surrey. Food of Snow-Bunting. Woodchat Shrike recorded as seen in Caithness. Sexual Display by Hedge-Sparrow. Hen-Harrier in Anglesey. Fulmers Breeding on the Farne Islands. Black-necked Grebes in June in North-east Scotland	359
Letters :—	
Greenfinch's repeated return to Trap (Mrs. H. Rait Kerr) ...	361
Sounds produced by Little Owl (H. G. Alexander)	361
Redshanks displaying in December (E. W. Hendy)	361
Sea-Bird Movements (G. T. Kay)	361
Review :—	
<i>How to Know British Birds.</i> By Norman H. Joy	363

YOUNG ROOKS, THEIR SURVIVAL AND HABITS

BY

J. P. BURKITT.

I WROTE on this subject in April, 1935 (*antea*, Vol. XXVIII, p. 322). I have pursued it for another year and have had considerably more information, all corroborative of the preceding, but in no wise tending to increase my estimated number of surviving young Rooks (*Corvus frugilegus*). I will call the birds under one year, juveniles. These are, of course, known by their feathered bill, which I find may in some birds begin to lose its characteristics by mid-February, but yet they are, I think, all distinguishable up to the end of April. Those birds between one and two years I call adolescents. "Adults" generally includes adolescents unless otherwise mentioned. Jackdaws (*Colæus m. spermophilus*) are generally found with every type of Rook group perhaps especially with young Rooks, but I cut them out.

I find that juveniles appear to be distributed from the end of August throughout the winter in two ways. First, as small fractions of normal Rook flocks, which fraction, from much observation, I place at, say, an average of one juvenile to twenty adults, there being often no juveniles at all. Secondly, in small flocks composed entirely of juveniles, varying in number up to about two dozen (generally with a lot of Jackdaws). There seems a definite tendency among juveniles in autumn and winter, whether in the field or on trees, to group together.

The purely juvenile flocks seem to be much rarer than normal mixed flocks. These juvenile flocks seem to have beats or feeding grounds of their own. The total in all these juvenile flocks seems at the highest estimate not to make more than the total number of juveniles in the mixed flocks and thus the entire juvenile population (after August) would seem to be at most one-tenth of the adults (and adolescents). The exact fraction is not so much the point as the type of fraction. It may possibly be one-seventh but it is certainly not one-fifth, much less one-half, as some might expect.

Whereas adults during the winter frequently visit the rookery, and especially as a complete flock on a quiet evening before leaving for the roost, the juveniles seldom make day visits, and hardly ever at dusk time; the juveniles and some others, which I guess to be partly adolescents, appear to go to roost without first visiting the rookery. The rookery seems to make very little call on juveniles but a great deal on

adults, which may be a cause of juveniles practising their own company.

In the case of my own individual rookery, observation of numbers at the rookery or in the feeding grounds, and the numbers of nests, goes to confirm the small survival of young. If it be argued that my juveniles adopt other flocks, then why should not those from other flocks adopt mine? Again it may be said that juveniles will be found in their true and much larger numbers at the winter roost. But I have so far been unable to see evidence pointing to a greater general fraction of juveniles than above, from such observation as I could make at the roost in winter, or when the winter roost turns into one of the many spring rookeries. My observations at the winter roost could be greatly improved. Observations at some winter roost, from a hide, by a near resident, would be very desirable. I did, however, see some evidence of some juveniles arriving at the roost in groups.

One habit of juveniles which is a great hindrance to an observer is that on alighting either at a rookery or at a roost they have a definite custom of immediately dropping to lower branches. A clear view of them on the sky line is hard to get, in distinct contrast with adults. Purely juvenile flocks in the field are not nearly so wary as adults and they seldom or never caw. (The observer has to beware of overlooking juvenile bills for it is much easier to determine that bills are adult than that they are not).

When roosting at the spring rookery begins, or shortly afterwards, a small party of birds not interested in building may be seen to come in, especially at late dusk. This party would seem to be composed of my stated small fraction of juveniles belonging to my rookery plus a rather greater number (but still small) which are adults or adolescents, or probably both. In my own notes I call this group the "nursery" and I shall refer to it later.

When nest building is in full swing the builders' flights are all near the rookery, so a large part of the normal feeding area of Rook flocks is empty except for juveniles and adolescents and any others not yet inclined to build. This is an interesting time as outlying flocks now seen are small and the juvenile proportion jumps up at once. In my experience the numbers in these flocks vary between fifteen and forty Rooks of which neither class (juvenile or non-juvenile) exceeds about twenty-four, and is generally much less. These flocks seem a clear corroboration of the small survival of young. But there is no absolutely hard and fast rule that *all* juveniles are away

all day from the now busy rookery. I may find an odd juvenile at any such rookery, and sometimes all the "nursery" pays it a visit (generally with Jackdaws).

Once the nests are built the builders go individually farthefield to feed. Thus some of them may join with the non-building flock, but nesters can be distinguished by hurrying back with food. Of the non-juveniles in the small non-building flocks some seem obviously paired and feed each other and these birds probably account for the late builders mentioned below. But it is to be noted that juveniles in the breeding season have several habits which are just like breeders. Whether at the rookery or away in the country they are then very fond of biting the twigs of trees (fonder of biting than breaking). They may carry a twig to another tree. They may pick up a twig when feeding and play with it or carry it a distance. They may feed each other (with swollen gullets) and keep company as if paired. At the rookery a pair of them may even seem to select a building site but low down.

Mr. Yeates, in his *Life of the Rook*, comments on a "second occupation", i.e. late nesters, which springs up about the first week in April and which, he says, should be remembered by census takers. My notes on this point are only over three or four years, but they certainly point to late-built nests, a small number up to, say, one-fifth of the total, and after the 1st of April. The addition rate in these seems far slower than before that date, not faster as might be expected. These late nests synchronize with a breaking-up of my nursery-roosting group at that time. This may just be a coincidence or it may mean that some of the afore-mentioned companions of the juveniles become, as I have said, the late builders.

Now I come to the summer mortality among young. I call the post-nesting population that gauged at the end of June, though this is really a month after leaving the rookery. This post-nesting number has, by the end of August, become enormously reduced. At the end of August we practically return to the pre-nesting or winter figure as others have observed. The end of August seems to end the lonely period with juveniles or the period of indefinite grouping, as well as to end the great mortality period for them. It is at the beginning of September that there is nearly, if not quite, as much adult attachment to the rookery and excitement and mating flights as there is at the start of the March building. I think mating for most birds that desire it is settled at this time for

the next season. Hence the grouping of juveniles from now on may be instigated by the temporary absence of most adults.

My winter population, which I previously gave as consistently about $2\frac{1}{2}$ times the number of nests is fairly corroborated by the experience of 1935 (my nests increased this year from 54 to 62). The post-nesting (end of June) number of young which for previous years I tendered with great suspicion as 2.3 per nest, I would think, from further experience, to be 1.5 to 1.2 per nest. The figure is difficult to determine. Rook grouping is at this period unsettled. The figure has mainly to be gauged by finding the total number which may come at dusk to the rookery at the end of June, cutting out any Jackdaws and then deducting the pre-nesting figure. Actually, to count the young bills separately in that light with leaves on the trees, is rather hopeless to expect.

Now, if I take the surviving young after August as that estimated at the beginning of this paper, viz. one-tenth of the adult population or 0.10A, and at the end of June as 1.5 per nest or, say, 0.75A, then the months of July and August kill off a number of young birds equal to about 65 per cent. of the parents. Or, alternatively, if I allow the surviving young after August as possibly reaching one-seventh of the adults and if I take the young for the end of June as only 1.0 per nest, then July and August kill off a number equal to about 36 per cent. of the parents. So whatever figures are taken that can at all accord with my experience a great mortality in July and August remains to be explained. We might, without consideration, expect to notice the dead birds, but if they were evenly distributed over the feeding area the above figures give one dead bird to from 40 to 72 acres. I get this figure from Mr. Roebuck's big survey of 1,421 rookeries covering 5,300 square miles (*antea*, Vol XXVII., p. 20) where he gives each nesting bird an average area of 26 acres (with which my own feeding ground agrees).

This Rook juvenile mortality may not really be any contrast with other species nor its almost entire confinement to the first four months of life, but Rooks seem such safe-living birds. And as I have shown, when writing on the Robin (*antea*, Vol. XX., p. 97), we must either expect a big mortality or a very short adult life, if the general population of a species is to remain anything at all like stable. Using the same formula as there given and taking the Rook survival to maturity as alternatively one-tenth or one-seventh of the adult population, then, ignoring non-breeders, the average life of the

mature Rook would be about either ten or seven years. Should we expect any more? But this paper has only dealt with survival observations for the first year. If there is a further mortality in the second year then either my observed survival fraction must be increased or the just-mentioned average life of the adult Rook must be increased. It is worth noting that I suggested three years as the probable maximum life of the average adult Robin (based on observed juvenile mortality), and that in actual fact out of nearly 100 adult Robins there was only one of which I had evidence of its living four years.

Young Rooks in August are often seen alone and also in places far from rookeries and lone birds at dusk seem sometimes not to know where to roost. Lone birds are nearly always found to be young. This lone-ness may tend to mortality. I have never seen any animosity worth noting shown by adults to juveniles even when the latter perch as year-olds close to nests. So it yet remains for someone to account for the July-August mortality.

THE " BRITISH BIRDS " MARKING SCHEME.*

PROGRESS FOR 1935.

BY

H. F. WITHERBY.

NUMBER OF BIRDS RINGED.

				<i>Trapped.</i>	<i>Nestlings.</i>	<i>Total.</i>
In 1935	..	..	..	16,066	30,364	46,430
„ 1934	..	..	..	17,835	31,816	49,651
„ 1933	..	..	..	10,466	27,975	38,441
„ 1932	..	..	..	7,643	22,950	30,593
„ 1931	..	..	..	7,041	22,513	29,554
<hr/>						
In 1909	..	2,171				
„ 1910	..	7,910				
„ 1911	..	10,416				
„ 1912	..	11,483				
„ 1913	..	14,843				
„ 1914	..	13,024				
„ 1915	..	7,767				
„ 1916	..	7,107				
„ 1917	..	6,926				
„ 1918	..	5,937				
„ 1919	..	3,578				
Grand Total				482,070		

THOUGH falling below the record figure for 1934, the total for 1935 of birds ringed is very large. The number of non-Passerine birds ringed is rather more than one-third of the total, and the number of birds trapped is in the same proportion.

Fourteen ringers have exceeded the thousand mark ; five of these have ringed over two thousand each. The number of societies and schools who take up ringing is increasing, and there are twenty-one such organizations this year, which is

* For previous Reports see Vol. III., pp. 179-182, for 1909 ; Vol. IV., pp. 204-207, for 1910 ; Vol. V., pp. 158-162, for 1911 ; Vol. VI., pp. 177-183, for 1912 ; Vol. VII., pp. 190-195, for 1913 ; Vol. VIII., pp. 161-168, for 1914 ; Vol. IX., pp. 222-229, for 1915 ; Vol. X., pp. 150-156, for 1916 ; Vol. XI., pp. 271-276, for 1917 ; Vol. XIII., pp. 96-100, for 1918 ; Vol. XIII., pp. 237-240, for 1919 ; Vol. XIV., pp. 203-207, for 1920 ; Vol. XV., pp. 232-238, for 1921 ; Vol. XVI., pp. 277-281, for 1922 ; Vol. XVII., pp. 231-235, for 1923 ; Vol. XVIII., pp. 260-265, for 1924 ; Vol. XIX., pp. 275-280, for 1925 ; Vol. XX., pp. 236-241, for 1926 ; Vol. XXI., pp. 212-219, for 1927 ; Vol. XXII., pp. 253-258, for 1928 ; Vol. XXIII., pp. 258-263, for 1929 ; Vol. XXIV., pp. 234-244, for 1930 ; Vol. XXV., pp. 286-291, for 1931 ; Vol. XXVI., pp. 295-300, for 1932 ; Vol. XXVII., pp. 278-283, for 1933 ; Vol. XXVIII., pp. 302-308, for 1934.

most satisfactory. Apart from the valuable results accruing from the ringing, such work, if carefully and methodically undertaken, brings the ringer into direct contact with the bird, and thus gives a close knowledge of its appearance and characters, besides teaching a great deal about habits and habitat. Two of these organizations—the Skokholm Bird Observatory and the Isle of May Bird Observatory—represent a new departure for our scheme and deserve special mention here. Both have been formed for the special purpose of catching and ringing birds on migration, which may well lead to novel results, and both have very wisely made it possible for any one who is sufficiently interested and skilful to take part in the work.

Dr. Moon once more comes to the head of the list in numbers ringed, a position he has held with the exception of last year since 1924. His total this year is the second largest he has ever done and is very remarkable in being made up of nestlings not to be found in colonies. His largest totals are Song-Thrush (1,262), Lapwing (970), Blackbird (877), Starling (379).

Mr. Charteris's list is equally remarkable for a combination of trapped birds and nestlings. In trapping, Mr. Charteris has employed a number of methods, but has secured large numbers by netting at night. His totals include Chaffinch (1,162), Brambling (142), and Redwing (104), and the two latter might lead in the future to our gaining some knowledge of the regularity or otherwise of the return of migrants to winter quarters.

The Oxford Ornithological Society have ringed a large number of different species in various parts of the country, but their chief totals, e.g., Starling (500) are in trapping at Oxford.

Mr. Robinson has this year ringed Common Tern (1,022), Sandwich Tern (501), and Lesser Black-backed Gulls (513).

Mr. Morshead has the second largest total of trapped birds, these being secured mostly in movable traps.

Bootham heads the schools and has a varied list of trapping and nestlings combined, mainly among Passerine species. Mr. Cohen's list is also varied, but includes a large number of Sandwich Tern (445). At Skokholm Bird Observatory, to which I have already referred, large numbers of Gannets, Manx Shearwaters and Razorbills have been ringed, besides many migrants caught in the migration trap. In Mr. Mayall's list Nightingale (351) is a feature, while Mr. Boyd has devoted great attention to trapping, besides ringing many Swallows. Mr. Mitchell has specialized in Manx Shearwater, Puffins, and Herring-Gulls.

Mr. Wontner-Smith has this year devoted himself chiefly to Passeres, among which I notice Rooks (144), while Lord Dumfries has ringed five hundred Gannets and three hundred Cormorants. Rugby School has ringed chiefly nestlings, including large numbers of Crows, Rooks, and Jackdaws.

Of other lists, Mr. Hollom's is certainly the most unusual since it is chiefly made up of over 350 Gulls of five different species all netted at night, a number of Goosanders and Tufted Ducks caught and 115 nestling Herons.

Large numbers of Woodcock have been ringed—404 through the British Trust for Ornithology in connexion with the Woodcock inquiry, 132 by Mr. Bartholomew, 65 by Lord Mansfield, and considerable totals by several other ringers.

Among birds caught on migration we have, besides those captured at Skokholm, 50 Willow-Warblers caught in the Isle of May trap, and 96 Whitethroat ringed by Mr. Wynne at St. Catherine's Lighthouse. It is unfortunate that Warblers, even when ringed as fully grown, are so seldom reported that we cannot expect more than three or four per thousand to yield returns.

Work has been continued with Swallows and large numbers have again been ringed. Mr. Boyd (360) and Messrs. Thomas (276), Mayall (238), and Garnett (208) have the largest totals, but the following have ringed over 100 each: Mr. Cohen (170), Dr. Moon (154) Miss Ferrier (151), Rugby School (149), London N.H. Society (122), and Bootham School (102).

One of the great difficulties of all ringing schemes, which grow to any size, is the publication of records in detail, and the increase in recent years of the number of rings used, and consequently in the number of birds recovered, in connexion with our scheme, is making adequate publication of recoveries a difficult problem. It may perhaps be found necessary in order to lessen the space occupied by each record to omit the names of the ringer and reporter and give only the essential details of place and date. This would enable us to publish more records, and as these records are now used in so many different ways it seems important that those likely to be useful should be made generally available by publication. I should appreciate the views of ringers on this point. If ringers' names are omitted it would of course necessitate their scanning the list of recoveries for the ring numbers issued to them.

We have again to record our gratitude to Miss E. P. Leach for the immense amount of valuable work she has done continuously throughout the year in connexion with the scheme.

NUMBER OF BIRDS RINGED.

	<i>Trapped.</i>	<i>Nest- ling.</i>	<i>Total.</i>		<i>Trapped.</i>	<i>Nest- ling.</i>	<i>Total.</i>
H. J. Moon ..	223	4,982	5,205	J. F. Wynne ..	134	—	134
G. Charteris ..	2,233	1,116	3,349	M. Mitchell ..	52	77	129
Oxford Orn. Soc.	1,927	499	2,426	D. J. Robertson	—	122	122
H. W. Robinson ..	75	2,326	2,401	K. W. Newall ..	—	117	117
P. Morshead ..	2,161	185	2,346	A. H. Eggeling..	40	75	115
Bootham School	479	1,447	1,926	N. F. Ticehurst..	6	100	106
E. Cohen ..	537	1,263	1,800	J. Barnes ..	—	107	107
Skokholm B. Obs.	901	774	1,675	Blundell's S. ..	—	103	103
A. Mayall ..	169	1,393	1,562	C. C. Gaunt ..	49	53	102
A. W. Boyd ..	878	582	1,460	Miss Staunton ..	58	36	94
F. Mitchell ..	1,000	152	1,152	Sedbergh S. ..	1	92	93
C. Wontner Smith	148	1,002	1,150	Mrs. Wilson ..	—	80	80
Earl of Dumfries	137	906	1,043	J. Cunningham..	14	74	88
Rugby School ..	21	986	1,007	L. Monks ..	7	79	86
R. M. Garnett..	210	699	909	M. Williams ..	1	83	84
D. K. Bryson and				J. Ellis ..	5	70	75
W. Serle ..	96	736	832	R. Fitter ..	20	50	70
Earl of Mansfield	3	771	774	C. H. Kaye ..	25	51	76
P. Hollom ..	419	233	652	Mrs. Greenlees ..	2	72	74
Cheltenham Coll.	139	484	623	R. S. Pollard ..	30	43	73
A. J. Harthan ..	475	83	558	J. Graham ..	1	71	72
Col. G. P. Pollitt	365	171	536	Austwick, F. C..	—	70	70
J. Bartholomew	7	508	515	Miss Sharp ..	—	67	67
St. Edmund's S.	19	478	497	Wigton Friends S.	1	62	63
London N.H. Soc.	190	292	482	C. S. Clarke ..	7	54	61
I. o. May B. Obs.	301	157	458	R. G. Williams..	16	44	60
Miss Ferrier ..	4	449	453	A. H. Bishop ..	1	57	58
P. Allen.. ..	49	389	438	W. Pollok-Morris	3	55	58
R. Martinson ..	58	361	419	G. Wheeler and			
Brit. Trust for Orn.	—	404	404	P. Hand ..	24	33	57
J. F. Thomas ..	51	329	380	H. Tully ..	22	34	56
Leighton Park S.	225	149	374	H. Gillman ..	—	49	49
S. Baron ..	71	271	342	H. F. Witherby	37	11	48
Mrs. Hodgkin ..	21	315	336	R. O. Blyth ..	4	43	47
B. T. Brooker and				G. Marples ..	27	20	47
E. M. Cawkell ..	12	319	331	Barnard Castle S.	30	15	45
R. H. Brown ..	—	317	317	J. N. Fletcher ..	4	41	45
F. J. Ramsay ..	211	102	313	E. Blezard ..	—	44	44
W. A. Cadman..	8	285	293	Mrs. Morley ..	1	43	44
T. Kerr ..	13	274	287	J. Law ..	42	—	42
H. G. Alexander	265	—	265	W. Ritson ..	1	41	42
Miss Steinthal..	195	68	263	H. V. Bamford..	2	30	32
Dartington Hall S.	179	76	255	T. Perrin ..	7	28	35
C. Oakes and				Clifton Coll. ..	12	22	34
E. Battersby ..	21	207	228	Miss Darlington	—	34	34
M. Philips Price	68	150	218	H. Whistler ..	33	1	34
W. E. Kenrick..	203	14	217	Marquis of Hamilton		32	32
Perths. N.H. Soc.	—	204	204	H. S. Greg ..	1	20	21
E. G. Holt ..	139	25	164	W. M. Congreve	20	8	28
E. Peake ..	156	8	164	Miss Monro ..	28	—	28
G. Brown ..	21	142	163	F. A. Craine ..	11	16	27
Midlothian Orn.C.	20	134	154	W. B. Duncan..	4	23	27
Wellington Coll.	7	140	147	Sir S. Bilsland ..	—	25	25
E. U. Savage ..	—	140	140	Sanct. Club Camb.	25	—	25

NUMBERS OF EACH SPECIES RINGED.					Grand Total.	RECOVERED	
	1909 to 1934	1935 Trapped.	Nest- lings.	Total.		of those ringed 1909-34.	Per- centage.
Raven	96	—	11	11	107	7	7.2
*Crow, Carrion ..	726	61	96	157	883	49	6.7
Rook	3251	16	326	342	3593	114	3.5
Jackdaw	2005	79	175	254	2259	82	4.0
*Magpie	542	14	47	61	603	18	3.3
Jay	333	2	19	21	354	18	5.4
Starling	33808	2611	1173	3784	37592	1431	4.2
Greenfinch ..	17471	1559	613	2172	19643	1210	6.9
*Goldfinch ..	305	2	15	17	322	7	2.2
Redpoll, Lesser..	461	5	54	59	520	3	0.6
Linnet	7144	191	324	515	7659	48	0.6
Bullfinch ..	1121	28	133	161	1282	32	2.8
Chaffinch ..	16485	2546	653	3199	19684	538	3.2
Brambling ..	269	189	—	189	458	7	2.6
Sparrow, Tree ..	1672	68	89	157	1829	43	2.5
Bunting, Yellow	3604	289	60	349	3953	202	5.6
Bunting, Reed ..	1348	71	76	147	1495	53	3.9
Lark, Sky	3091	43	35	78	3169	32	1.0
Pipit, Tree ..	1470	3	65	68	1538	4	0.2
Pipit, Meadow ..	3443	230	99	329	3772	57	1.6
Wagtail, Yellow	765	6	29	35	800	4	0.5
Wagtail, Grey ..	590	1	34	35	625	1	0.1
Wagtail, Pied ..	4309	61	342	403	4712	60	1.3
Tit, Great	2614	459	124	583	3197	378	14.4
Tit, Blue	3467	874	91	965	4432	647	18.6
Shrike, R.-backed	704	1	16	17	721	2	0.2
Flycatcher, S. ..	3000	10	27	37	3037	7	0.2
*Flycatcher, Pied	884	—	25	25	909	5	0.5
Chiffchaff	675	8	27	35	710	4	0.5
Warbler, Willow	8346	112	34	146	8492	37	0.4
Warbler, Wood..	914	—	11	11	925	2	0.2
Warbler, Reed ..	825	2	—	2	827	4	0.4
Warbler, Sedge..	954	16	19	35	989	2	0.2
Warbler, Garden	1011	10	71	81	1092	1	0.09
Blackcap	682	11	85	96	778	—	—
Whitethroat ..	3136	170	33	203	3339	14	0.4
Thrush, Mistle ..	3195	32	325	357	3552	57	1.7
Thrush, Song ..	48936	437	3735	4172	53108	826	1.6
Redwing	117	119	—	119	236	—	—
Ouzel, Ring ..	415	—	—	—	415	3	0.7
Blackbird	38127	966	3376	4342	42469	1491	3.9
Wheatear	1412	21	33	54	1466	28	1.9
Whinchat	1431	3	45	48	1479	8	0.5
Stonechat	640	3	22	25	665	4	0.6
Redstart	1582	13	101	114	1696	5	0.3
Nightingale ..	1219	2	381	383	1602	4	0.3
Redbreast	15524	661	823	1484	17008	1259	8.1
Sparrow, Hedge	10502	448	367	815	11317	794	7.5
Wren	3383	44	35	79	3462	10	0.2
Dipper	925	—	63	63	988	8	0.8
Swallow	31156	144	2943	3087	34243	273	0.8
Martin	9725	18	253	271	9996	58	0.5
Martin, Sand ..	4039	8	82	90	4129	9	0.2

* Of species so marked no record was kept of the number ringed from 1913 to 1920.

NUMBERS OF EACH SPECIES RINGED.						RECOVERED	
	1909 to 1934	Trapped.	1935— Nest- lings.	Total.	Grand Total.	of those ringed 1909-34.	Per- centage.
*Swift	734	24	30	54	788	49	6.6
Nightjar	169	—	20	20	189	2	1.2
Kingfisher	443	1	72	73	516	22	4.9
Wryneck	343	—	—	—	343	6	1.7
Cuckoo	517	2	53	55	572	17	3.2
*Owl, Little	377	7	40	47	424	38	10.0
Owl, Long-eared	187	1	3	4	191	7	3.7
Owl, Barn	418	4	26	30	448	27	6.4
Owl, Tawny	654	2	72	74	728	39	5.9
Peregrine Falcon	54	—	3	3	57	7	12.9
*Merlin	161	—	4	4	165	39	24.2
Kestrel	663	2	12	14	677	73	11.0
*Buzzard	187	—	13	13	200	10	5.3
Hawk, Sparrow	371	2	24	26	397	53	14.2
Heron, Common	1585	1	136	137	1722	157	9.9
Sheld-Duck	327	—	55	55	382	15	4.5
Mallard	5237	27	59	86	5323	674	12.8
Teal	985	25	6	31	1016	126	12.7
Wigeon	192	21	15	36	228	20	10.4
Duck, Tufted	120	16	5	21	141	19	15.8
Eider	662	1	119	120	782	25	3.7
Cormorant	1139	—	332	332	1471	216	18.9
Shag	1429	2	67	69	1498	141	9.8
Gannet	3794	27	996	1023	4817	127	3.3
Shearwater, Manx	3209	1314	208	1522	4731	90	2.7
Wood-Pigeon	2219	5	142	147	2366	88	3.9
Dove, Stock	417	21	18	39	456	20	4.7
Dove, Turtle	487	9	10	19	506	45	9.2
Stone-Curlew	151	—	22	22	173	7	4.6
Oyster-Catcher	903	1	79	80	983	34	3.7
Plover, Ringed	954	—	85	85	1039	13	1.3
Plover, Golden	204	—	27	27	231	3	1.4
Lapwing	25533	6	2389	2395	27928	583	2.2
Sandpiper, C.	688	2	37	39	727	3	0.4
Redshank	1586	1	115	116	1702	60	3.7
Curlew, Common	1968	—	282	282	2250	80	4.0
Snipe, Common	1151	2	81	83	1234	66	5.7
Woodcock	3503	2	763	765	4268	258	7.3
Tern, Sandwich	9965	—	1674	1674	11639	136	1.3
Tern, Common	13531	4	1710	1714	15245	344	2.5
Tern, Arctic	1084	—	253	253	1337	2	0.1
Tern, Little	502	9	91	100	602	3	0.5
Gull, B.-headed	12457	363	82	445	12902	547	4.3
Gull, Common	1268	55	85	140	1408	32	2.5
Gull, Herring	4260	26	922	948	5208	63	1.4
Gull, L. Blk.-bkd.	8664	7	674	681	9345	313	3.6
Gull, G. Blk.-bkd.	325	1	57	58	383	10	3.0
Kittiwake	934	1	151	152	1086	10	1.0
Razorbill	1599	44	190	234	1833	25	1.5
*Guillemot	1494	15	63	78	1572	25	1.6
Puffin	3049	285	122	407	3456	21	0.6
Rail, Land	342	1	23	24	366	4	1.1
Moor-Hen	1261	34	54	88	1349	29	2.2
Coot	128	—	1	1	129	10	7.8

BIRDS OF INNER LONDON.

BY

A. HOLTE MACPHERSON.

ADDITIONAL SPECIES.

DURING 1935 two species occurred which make additions to the list published in this magazine in 1929 (Vol. XXII., pp. 222-244) and subsequently extended.

A Snow-Bunting (*Plectrophenax n. nivalis*) was seen on November 26th, 1935, in Kensington Gardens, by Dr. G. Carmichael Low and Mr. E. G. Pedler, and has already been recorded (*antea*, p. 239). The date is worth noting. Mr. W. E. Glegg, in his *Birds of Middlesex* (p. 45), drew attention to the fact that out of the twelve dated occurrences of this species in the county, all but five were in November.

Early in the morning of May 27th, 1935, I noticed a Black Tern (*Chlidonias n. niger*) flying to and fro over the Serpentine, Hyde Park. It stayed throughout the day and was seen by several other observers. At this time there was a marked passage of the species through the Thames Valley. I saw another Black Tern an hour later at Barnes, and had watched a party of six at Staines on the day before.

ADDITIONAL NOTES IN 1935.

There were probably not more than two pairs of Jays (*Garrulus g. rufitergum*) in the grounds of Holland House; but, as in 1934, a pair frequented Regent's Park where Miss M. Rew noticed them on many occasions from January to September.

A Goldfinch (*Carduelis c. britannica*) was seen by Miss M. Rew on March 7th and 16th in Regent's Park.

Dr. G. Carmichael Low and Mr. E. G. Pedler saw a Brambling (*Fringilla montifringilla*) on March 29th in Kensington Gardens.

The Long-tailed Titmouse (*Egithalos c. roseus*) is a very uncommon visitor to Inner London, but on October 30th I noticed a flock of six in Holland Park Avenue, and on the same day Mr. R. W. Hale saw four flying over *The Times* office in the direction of Blackfriars Bridge. Mr. H. G. Attlee writes that on November 30th he saw three in a garden near Addison Road Station, Kensington.

Mr. E. G. Pedler saw a Goldcrest (*Regulus r. anglorum*?) in Hyde Park on October 5th, and another in Kensington Gardens two days later.

A Pied Flycatcher (*Muscicapa h. hypoleuca*) was seen by Mr. E. M. Nicholson on September 23rd, in St. James's Park.

A Wood-Warbler (*Phylloscopus s. sibilatrix*) was in song by the Long Water on May 30th in the early morning.

Wheatears (*Enanthe w. enanthe*) passed through Regent's Park in April, though in smaller numbers than usual (Miss M. Rew); and I only heard of two in the autumn, seen in Kensington Gardens by Mr. E. G. Pedler and Admiral C. S. Hickley.

The Whinchat (*Saxicola r. rubetra*) was reported from Regent's Park by Miss M. Rew on April 10th, and by Mr. E. G. Pedler on August 24th from Kensington Gardens.

A Redstart (*Phœnicurus ph. phœnicurus*) was seen by Miss M. S. van Oostveen on April 10th, and another by Mr. E. G. Pedler on September 25th, both in Kensington Gardens.

Swifts (*Apus a. apus*) were often flying over the Serpentine and Round Pond from May 9th throughout the summer. It is possible that they nested in the neighbourhood, but I have no evidence of it.

The Kingfisher (*Alcedo a. ispida*) was observed by the Regent's Canal on February 26th (Miss M. Rew); in Kensington Gardens on March 29th and July 26th (Dr. G. Carmichael Low and Mr. E. G. Pedler); and in Battersea Park on August 3rd (Mr. H. G. Attlee).

The Great Spotted Woodpecker (*Dryobates m. anglicus*) bred in the grounds of Holland House. The nest was about 18 feet from the ground in the trunk of a chestnut tree, within three yards of a public walk. The young birds were very vociferous during the first week of June, but not one in a hundred passers-by appeared to notice the sound. Of the nests of this species which I have seen in London and which were over ten feet from the ground, this was the only one from which the owners were not ejected by Starlings. Miss M. Rew informs me that she saw the Great Spotted Woodpecker in Regent's Park on various occasions throughout the year.

Mr. E. G. Pedler observed a Lesser Spotted Woodpecker (*Dryobates m. comminutus*) several times during the autumn in Kensington Gardens.

A Cuckoo (*Cuculus c. canorus*) was calling in Kensington Gardens on June 1st. Others were reported to me from the same place on July 23rd (Mr. D. Gunn) and 26th (Mr. E. G. Pedler), and from St. James's Park on July 28th (Mr. E. M. Nicholson).

A Sparrow-Hawk (*Accipiter n. nisus*) was seen by Miss M. Rew on March 16th in Regent's Park.

A Shag (*Phalacrocorax a. aristotelis*), which stayed on the Serpentine from October 14th to 18th, and was identified by Mr. E. G. Pedler and Mr. D. Gunn, has already been recorded (*antea*, p. 293).

Great Crested Grebes (*Podiceps c. cristatus*) paid an unusual number of visits to the water in Hyde Park and Kensington Gardens. They were seen in March, July, September, October and December.

At the beginning of the year a vast number of Wood-Pigeons (*Columbus p. palumbus*) came into Kensington Gardens to roost. They must have numbered several thousands. Most came from the north and west. Their numbers rapidly diminished towards the end of February. Several hundreds which roosted on the island in the Serpentine arrived mostly from the east.

The Turtle-Dove (*Streptopelia t. turtur*) was seen in Regent's Park in May and June (Miss M. Rew), also in September (Col. A. E. Hamerton); and in Kensington Gardens in June (Mr. E. G. Pedler).

In the early and misty hours of May 30th, I came within a few feet of a very tired Dunlin (*Calidris alpina*) by the Round Pond in Kensington Gardens. It did not remain long, leaving before many people were about; yet it was identified and reported to me by four other observers, evidence of the large number of persons now taking an interest in birds. There is only one definite record of the previous occurrence of this species in Inner London.

Some Common Sandpipers (*Tringa hypoleucos*) probably escaped notice. One was seen by Mrs. E. MacAlister on May 20th, and another by Mr. E. G. Pedler on July 14th. Both birds were by the Long Water.

Mr. E. M. Nicholson heard several Curlew (*Numenius a. arquata*) over Westminster on the night of August 21st.

A Common Tern (*Sterna h. hirundo*) visited the Serpentine on May 28th, and was reported to me by Mr. J. B. Watson and other observers.

A Scandinavian Lesser Black-backed Gull (*Larus f. fuscus*) was seen in St. James's Park by Mr. H. W. Robinson (*antea*, p. 188). I saw one by the Long Water on October 9th, side by side with it was an adult example of *Larus f. graellsii*.

Mr. Graham Hopkins telephoned to me on September 18th that he had just been watching an Arctic Skua (*Stercorarius parasiticus*) in St. James's Park. The bird had left when I

arrived there half an hour later ; but it had been noticed also by Mr. W. P. K. Neale, who recorded the occurrence in *The Times* (September 23rd, 1935).

In the afternoon of October 14th a Puffin (*Fratercula a. grabe*) held up the traffic in the Strand by alighting in the middle of the roadway. It was caught and taken to the Zoological Gardens. On going to look at it three days later, I was informed that it had died during the preceding night. I found it in the hands of the pathologist, Colonel A. E. Hamerton, who had just examined it and told me its death was due to pneumonia. It was a young bird.

ADDITIONAL NOTE FOR 1934.

Too late for insertion in my last report, Mr. E. M. Nicholson informed me that on September 9th, 1934, when in Hyde Park, he heard and saw an Oystercatcher (*Hæmatopus ostralegus*). This bird was flying fairly low and as if lost ; eventually it went off in the direction of Lancaster Gate. This species has previously only once been recorded from Inner London.

NOTES FROM RESERVOIRS AND SEWAGE FARMS.

ALTRINCHAM SEWAGE FARM, CHESHIRE, 1935.

THOUGH abundant, waders have not perhaps been seen in quite the numbers of 1934. The exceptional number of Ruffs that marked the autumn migration of that year was followed by more normal numbers in 1935. A Black-necked Grebe was seen on the farm for the first time.

My thanks are once more due for their notes to Messrs. E. L. Arnold, J. H. Lockett, W. Ramsden, R. Storey, A. R. Sumerfield, G. G. Uttley, S. V. Wild and S. B. Wood, and the following list has been compiled from these and from my own. Except where it is specially mentioned several observers joined in recording the following :—

HOODED CROW (*Corvus c. cornix*).—Often seen between January 6th and March 31st, usually one or two, but occasionally four, and six on March 8th.

SHELD-DUCK (*Tadorna tadorna*).—A young bird on September 14th and 15th.

RUDDY SHELD-DUCK (*Casarca ferruginea*).—On June 9th Mr. R. Storey saw a rather wild bird of this species. It disappeared later in the day. The possibility of its being an "escape" must be borne in mind (*British Birds*, XXIX., p. 88).

Other duck : Mallard (*Anas p. platyrhynchos*) bred, and Teal (*Anas c. crecca*) were frequent visitors ; Wigeon (*Anas penelope*), two on September 20th and 23rd ; Shoveler (*Spatula clypeata*), from one to five in June, July and August ; Pochard (*Nyroca f. ferina*), 23 on March 3rd, two in late September, 18 on October 6th and two on December 28th ; Tufted Duck (*Nyroca fuligula*) from September 8th to October 12th, a small flock varying from four to twenty ; Goldeneye (*Bucephala c. clangula*), one, January 1st to 4th.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—On July 17th one in full breeding plumage (A.W.B. and S.B.W.) ; and on 21st (G.G.U.).

LITTLE GREBE (*Podiceps r. ruficollis*).—Two on July 29th and 30th ; one on September 8th. Most unusual visitors.

OYSTER-CATCHER (*Hamatopus ostralegus*).—One on September 5th (W.R.). Rarely seen inland in Cheshire.

RINGED PLOVER (*Charadrius h. hiaticula*).—A few often present between March and October 12th ; Seldom more than three or four ; twelve on September 4th. Far fewer than usual.

GOLDEN PLOVER (*Charadrius apricarius*).—Few ; 15 on October 4th (S.B.W.).

GREY PLOVER (*Squatarola s. squatarola*).—On May 5th, one in summer plumage (R.S.) ; one on November 10th (G.G.U.).

TURNSTONE (*Arenaria i. interpres*).—One from May 17th to 20th (S.B.W.).

RUFF (*Philomachus pugnax*).—In small numbers : one on January 5th and 13th, on March 10th and on June 27th ; from July 29th to September 28th, in numbers varying from one to ten.

SANDERLING (*Crocethia alba*).—Single birds on March 5th, May 20th and August 3rd ; four on August 27th.

KNOT (*Calidris c. canutus*).—Five on August 9th ; one on September 10th and 22nd.

DUNLIN (*Calidris alpina*).—Its numbers reached their peak during the last fortnight of July, fluctuating between 30 and 75. In 1933 and 1934 the greatest numbers were seen in the last week of August.

CURLEW-SANDPIPER (*Calidris testacea*).—Few records; one on September 23rd, two on October 11th and six on October 12th.

LITTLE STINT (*Calidris minuta*).—Single birds on September 4th, 5th, 7th, and 28th, and on October 12th.

COMMON SANDPIPER (*Tringa hypoleucos*).—First seen on April 11th and throughout summer till September 19th. Nestlings found on May 28th. Greatest number twelve on July 18th.

WOOD-SANDPIPER (*Tringa glareola*).—One on September 29th (R.S.).

GREEN SANDPIPER (*Tringa ochropus*).—Seen in every month from January 1st to October 13th, except in May; never more than five together; one on November 10th and 24th.

SPOTTED REDSHANK (*Tringa erythropus*).—One in winter plumage was frequently seen from January 12th to March 17th; one in summer plumage from April 23rd to 27th, and one on May 8th and 29th; one on August 27th and 28th, September 17th and 29th, and October 5th; one on November 24th; one on December 28th.

REDSHANK (*Tringa totanus*).—In greatly fluctuating numbers throughout the year; maximum numbers—120, March 24th, 150, September 1st and September 10th to 14th, 200, October 11th and 19th.

GREENSHANK (*Tringa nebularia*).—From August 20th to October 12th; usually only one, but three on September 2nd, five on the 13th, three on the 17th and two on the 23rd. Much as in 1934.

BAR-TAILED GODWIT (*Limosa l. lapponica*).—One on August 18th and one on five days between September 2nd and September 13th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—First seen on August 2nd (six), two on September 1st and one on September 7th and 10th.

CURLEW (*Numenius a. arquata*).—Appeared singly in most months; four on July 30th and fifteen on September 13th.

WHIMBREL (*Numenius ph. phæopus*).—One on May 20th, six on May 28th, six on June 21st and one on July 15th.

JACK-SNIPE (*Lymnocyptes minimus*).—Single birds only seen on January 1st and 27th.

BLACK TERN (*Chlidonias n. niger*).—One on April 21st; two on September 19th and 22nd, and one on September 23rd and 27th.

COMMON OR ARCTIC TERN (*Sterna h. hirundo vel macrura*).—Six on September 17th (S.B.W.).

KITTIWAKE (*Rissa t. tridactyla*).—One found dead on May 24th (A.R.S.).

A. W. BOYD.

STAFFORDSHIRE RESERVOIRS, 1935.

FOR the second year in succession drought seriously reduced the water-area of Bellfields, the most westerly of the large south Staffordshire reservoirs. Gailey Pools were kept more or less to their normal level. The following notes refer to the former except where Gailey Pool is actually mentioned. Mr. H. G. Alexander (A.) and Miss C. K. James (J.) have very kindly sent me their notes for incorporation with my own:—

WATER-PIBIT (*Anthus s. spinoletta*).—Two seen on October 13th by H.G.A., who recognised their note before seeing the birds; he had no doubt of their identity.

WHITE WAGTAIL (*Motacilla a. alba*).—On January 7th one seen at five yards distance (A.).

WHITE-FRONTED GOOSE (*Anser albifrons*).—On January 7th three unidentified grey geese were seen (A.). On December 27th eleven grey geese flew over my head; all I saw clearly were white-fronted geese.

SHELD-DUCK (*Tadorna tadorna*).—On April 22nd, three very restless birds at Gailey. On August 20th, one (J.), and one on September 1st.

TEAL (*Anas c. crecca*).—A considerable increase in July.

WIGEON (*Anas penelope*).—300 to 400 in January, February and in December; three on April 28th and six to eight October 12th; between those dates only one drake, evidently the pricked bird of the previous summer. On December 27th a group of four drakes and two ducks were displaying.

PINTAIL (*Anas a. acuta*).—A duck on February 7th and a pair on March 30th (A.); a pair on April 22nd.

SHOVELER (*Spatula clypeata*).—The largest number was seen on April 22nd—about twelve pairs (A.). On June 23rd a duck with seven small youngsters.

POCHARD (*Nyroca f. ferina*).—Not so plentiful as usual on either reservoir. Seen as in other years in June and July, but no evidence of breeding.

TUFTED DUCK (*Nyroca fuligula*).—On June 14th an open nest with eight eggs, built in short grass and brook-lime, from which the water had receded. On July 28th a duck with a brood of eight.

GOLDENEYE (*Bucephala c. clangula*).—Never in the numbers of other years. Eight or nine at Gailey on February 7th (A.), the greatest number seen. One as early as August 20th (J.).

GOOSANDER (*Mergus m. merganser*).—January 7th, two (A.); January 27th, five and four at Gailey; February 5th, about seven and seventeen at Gailey (J.); February 7th, twenty-six at Gailey (A.), twelve or thirteen of which were drakes. On December 22nd a drake at Aqualate (A.).

SMEW (*Mergus albellus*).—On January 27th an adult drake at Gailey. On December 27th a brown-headed bird diving in a pool of open water; much of the reservoir still ice-covered.

CORMORANT (*Phalacrocorax c. carbo*).—Two on February 7th (A.); one on March 30th (A.); one on June 14th; one on July 13th (A.); one or two on October 13th (A.), at Gailey; one on February 5th (J.).

GREAT CRESTED GREBE (*Podiceps c. cristatus*).—There were no breeding-sites at Bellfields, but non-breeding birds were there through the summer; June 14th, nine; June 23rd, seventeen; July 13th twenty-six (A.); July 28th, twenty to thirty. On October 12th there were forty-four.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—On June 14th an adult in full plumage; nothing could be seen of it a week later.

RINGED PLOVER (*Charadrius h. hiaticula*).—One on August 20th (J.).

RUFF (*Philomachus pugnax*).—One on March 30th arrived from W. and left to E. (A.); one on June 14th and one on September 1st.

DUNLIN (*Calidris alpina*).—In small numbers; on March 30th, one (A.), and in July, August, September and October; twelve on September 19th (J.) the largest number seen.

CURLEW-SANDPIPER (*Calidris testacea*).—Two on October 12th (B.) and on October 13th (A.).

LITTLE STINT (*Calidris minuta*).—One seen within a few yards on October 12th, tame and easy to approach.

TEMMINCK'S STINT (*Calidris temminckii*).—Messrs. F. R. Barlow and H.G.A., both of whom are well acquainted with the bird in E. Prussia, saw one arrive from the N.E., and twice heard the characteristic

"twitter". They were satisfied that it was of this species and noted particularly that it lacked the strong markings on the back of the Little Stint; the example of that species seen on the previous day was very definitely marked and the whitish V on the shoulders was specially noticeable.

COMMON SANDPIPER (*Tringa hypoleucos*).—About twelve on July 13th and many on July 25th (A.). It is evident that, as in Cheshire, there is considerable movement of this species in July.

GREEN SANDPIPER (*Tringa ochropus*).—Five on July 13th and three on July 25th (A.).

REDSHANK (*Tringa totanus*).—Three or four pairs in June; two fledglings on July 28th; from one to four usually seen on every visit.

GREENSHANK (*Tringa nebularia*).—One, August 20th (J.). On September 1st one was feeding in shallow water; it ran with great speed with extended neck and open bill with its head under water for yards at a time; it was seen to catch something which it stopped to eat at the water's edge.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—One on July 25th (A.), and on July 28th (B.). A rare bird in Staffordshire.

CURLEW (*Numenius a. arquata*).—Strangely few; one on April 22nd; one on April 28th arrived from the S. (A.); one on June 14th.

SNIFE (*Capella g. gallinago*).—In mid-July about 100 (A.); many on July 28th. This marked increase in July has been noted especially in Cheshire in several years.

JACK SNIFE (*Lymnocyptes minimus*).—One on October 13th (A.).

BLACK TERN (*Chlidonias n. niger*).—One at Gailey on September 19th (J.).

COMMON TERN (*Sterna h. hirundo*).—One on April 28th (A.).

COMMON GULL (*Larus c. canus*).—Two on January 7th (A.); one on January 27th.

HERRING-GULL (*Larus a. argentatus*).—Three on February 7th; one adult April 28th (departed to N.); several December 22nd (A.).

LESSER BLACK-BACKED GULL (*Larus fuscus*).—On March 30th an adult (and two immature birds presumably of this species) passed to N.W. (A.). Single birds in June, July, August and September.

A. W. BOYD.

BITTELL RESERVOIRS, WORCESTERSHIRE.

At the end of 1934 the Bittell reservoirs were still very low, and it was only in the last three months of 1935 that they became full—for the first time for nearly three years. Consequently, swimming-birds were scarce in the early part of the year; but the migration seasons were good for waders, as in 1934. It was specially noteworthy that fish-eating birds, including Herons, Great Crested Grebes, Golden-eye and Goosanders, remained scarce throughout the year. Nevertheless, single birds of a number of unusual species were noted.

The following systematic notes are compiled from observations sent in by the following: Misses C. K. James, M. E. Pumphrey, M. le S. Simpson; Messrs. W. B. Alexander, F. R. Barlow, E. St. G. Betts, C. W. K. Wallis, H. Ll. Wilson, J. D. Wood and the writer. Initials are appended where an

observation was made by only one or two of these observers :—

WHITE-FRONTED GOOSE (*A. albifrons*).—A flock of fourteen was observed to alight on Lower Bittell on January 30th (H.L.W.). It was seen on the three following days by three other observers.

BRENT GOOSE (*B. bernicla*).—A single bird at Upper Bittell, from the end of December, 1934, to January 15th. It also visited Lower Bittell, and it must have wandered farther, for on certain days it could not be found.

SHIELD-DUCK (*T. tadorna*).—One on Upper Bittell on August 20th, and six on September 23rd (C.K.J.).

GADWALL (*A. strepera*).—A duck at the Lower Bittell on April 18th and 24th (J.D.W., H.G.A.).

PINTAIL (*A. acuta*).—A duck on the Upper Bittell on April 18th (H.G.A. and J.D.W.) with some Mallard, and on the 23rd (E.St.G.B.).

SHOVELER (*S. clypeata*).—The only record for the year seems to be a duck on December 7th (C.K.J., E.St.G.B.). Yet it breeds ten miles away in Warwickshire and twenty-five miles away in Staffordshire.

POCHARD (*N. ferina*).—A good-sized flock on Lower Bittell in January and February. The largest number noted was about sixty on February 9th (E.St.G.B.). They were again abundant in December.

TUFTED DUCK (*N. fuligula*).—Twenty-nine were counted at Lower Bittell on March 16th (E.St.G.B.).

SCAUP (*N. marila*).—A duck was seen at various dates between February 9th and April 6th, usually on a small pool close to Upper Bittell. It seems likely that this was the same bird that was seen between December and April in the previous winter. Both years it was very tame. On December 30th it (or another) was seen again (C.K.J.), but this time it did not stay.

GOLDEN-EYE (*B. clangula*).—A duck seen on November 14th at Upper Bittell seems to be the only record for the year (H.G.A.).

GOOSANDER (*M. merganser*).—A duck at Upper Bittell on January 21st, 23rd and 26th.

CORMORANT (*Ph. carbo*).—Single birds on April 27th (M.E.P. and E.St.G.B.), May 8th (C.K.J.) and two on June 14th (M.E.P.).

GREAT CRESTED GREBE (*P. cristatus*).—None nested successfully ; only two or three pairs even settled down as if intending to breed. There was no sign of the usual large spring passage in March and April.

RINGED PLOVER (*Ch. hiaticula*).—A much slighter spring migration than in 1934, single birds appearing on various dates from April 18th to May 20th. In autumn, noted off and on from July 23rd to September 28th ; nine on August 17th (E.St.G.B.), and twenty on September 22nd (W.B.A.), otherwise in quite small numbers.

GOLDEN PLOVER (*Ch. apricarius*).—One flying over, September 22nd (W.B.A.), and one, October 12th (H.G.A.), are the only records for the year.

GREY PLOVER (*S. squatarola*).—About 10.30 a.m. on November 21st I heard a Grey Plover calling in the air half-a-mile north-west of Upper Bittell. It soon joined a small party of Lapwings, and with them descended to the reservoir. Miss James saw it later in the day, but it did not remain. This is the second record of the species in recent years. Others were recorded inland at about the same time.

SANDERLING (*C. alba*).—Two by Upper Bittell, May 20th (C.K.J. and H.G.A.) ; one, September 20th (C.K.J. and M.le S.S.).

KNOT (*C. canutus*).—An immature seen at Upper Bittell, September 20th (C.K.J. and M.le S.S.).

DUNLIN (*C. alpina*).—Moderate numbers on both passages. March 28th to May 20th, mostly single birds, twice five; July 6th to September 28th, twice ten; September 22nd, a larger flock, not counted (C.K.J.).

LITTLE STINT (*C. minuta*).—An immature, in strongly-marked plumage, the only small wader with a flock of Lapwings, October 6th (F.R.B., H.G.A., C.K.J.).

COMMON SANDPIPER (*T. hypoleucos*).—It is a good many years since any nested at Bittell, and the spring passage this year was slighter than usual. The autumn passage lasted from July 6th to October 6th; never more than four or five were observed at one time.

GREEN SANDPIPER (*T. ochropus*).—Noted on nine days between August 3rd and September 6th; four on August 3rd (C.W.K.W.), two on August 21st (C.K.J.), otherwise singly.

REDSHANK (*T. totanus*).—Two pairs present during the spring, one of which apparently brought off young. Six seen on October 12th (H.G.A.), a rather unusual date.

GREENSHANK (*T. nebularia*).—One, Upper Bittell, August 21st (C.K.J.).

GREY PHALAROPE (*Ph. fulicarius*).—A single bird seen by several observers, September 16th to 20th—a fortnight earlier than the appearance of a single bird in 1934.

BAR-TAILED GODWIT (*L. lapponica*).—Two at Upper Bittell, May 9th to 13th (C.K.J., M.le S.S., E.St.G.B.).

CURLEW (*N. arquata*) and WHIMBREL (*N. phæopus*).—Single Curlews were observed on March 19th, May 20th, August 5th and 19th (C.K.J.), and one probably on June 14th (E.St.G.B.). On June 20th, a day of driving south-westerly rain, I had a curious experience for mid-summer in the middle of England. Between 10.30 and 10.50 a.m., first I saw three Curlews fly from east to west over the reservoir; then four (including a Whimbrel) flying from north-east to south-west, then five following the same direction. All were silent. At first I thought the four might be the same as the first three, joined by a Whimbrel, but after they had flown steadily away to the south-west the party of five soon followed in the same direction.

JACK SNIFE (*L. minimus*).—Seen by Upper Bittell in January, February, October, November and December.

BLACK TERN (*Ch. niger*).—One, Upper Bittell, September 14th (E.St.G.B., M.le S.S.).

COMMON TERN (*S. hirundo*).—One, Lower Bittell, May 26th (H.G.A.). Birds of this species or *S. macrura* were seen in the autumn as follows:—September 2nd, one; September 17th, two; September 19th, one.

COMMON GULL (*L. canus*).—Several at Upper Bittell on December 21st (C.K.J. and E.St.G.B.).

LESSER BLACK-BACKED GULL (*L. fuscus*).—Seen passing over on the following dates:—April 11th, two; May 4th, 13th, 15th, 16th, three; 19th, July 24th, two. Black-headed Gulls were seen on a good many occasions, but never more than stragglers or small passing flocks.

H. G. ALEXANDER.

BARROW GURNEY RESERVOIR, SOMERSET.

THE last month of 1935 was remarkable for the abnormal numbers of duck seen on the Barrow Gurney reservoirs. In several species these numbers have far exceeded any recorded recently. On December 17th Mr. H. H. Davis saw 1,000 Teal (*Anas c. crecca*), 130 Wigeon (*Anas penelope*), 65-70 Shoveler

(*Spatula clypeata*) and 200 Pochard (*Nyroca f. ferina*), other species not being counted. On the 28th Messrs. W. R. Taylor, A. C. Leach, J. H. Savory and the writer visited the reservoirs and the numbers given below are the result of joint observations. There were 300 Mallard (*Anas p. platyrhynchos*), 400 Teal, 250 Wigeon, 65 Shoveler, 1,200 Pochard, 50 Tufted Duck (*Nyroca fuligula*) and an adult drake of both Golden-eye (*Bucephala c. clangula*) and Scaup (*Nyroca m. marila*), giving a total of considerably over 2,000 birds. That these numbers are entirely exceptional will be seen from the following data taken from the Annual Reports of the Ornithological Section of the Somerset Arch. and Nat. Hist. Society:—

		Greatest No. Recorded.		Date.	
	Normal.				
Mallard ...	Up to 40	60-70	March	17th, 1934	
Teal ...	" 30	70	Jan.	3rd, 1933	
Wigeon ...	" 50	108	Feb.	17th, 1935	
Shoveler ...	Occasional only	8	March	22nd, 1928	
			and Jan.	11th, 1932	
Pochard ...	Up to 50, occasionally many more	332	Oct.	3rd, 1931	

It seems probable that the more wintry conditions in the northern and eastern parts of the British Isles compared with the milder climate of the Bristol district may have been responsible for this great influx. A large area of the North Somerset "levels" has been under water, a not unusual state of affairs at this time of year, but one which will no doubt have provided a plentiful food-supply for such birds as Teal, which have been particularly numerous in this area.

Another possible factor for which, however, there is no proof is that during the exceptionally dry summers of 1933 and 1934 advantage was taken to clean out a lot of the sediment from the reservoirs. This, coupled with the great amount of water in the reservoirs in December, 1935, may have caused some vigorous growth of plant or animal-life sufficient to induce the ducks to come there.

KNOT (*Calidris c. canutus*).—A single immature bird seen on September 28th with other waders is the first record for these reservoirs.

AMERICAN PECTORAL SANDPIPER (*Calidris melanotos*).—One seen September 28th to October 3rd (*antea*, pp. 183-185).

GREENSHANK (*Tringa nebularia*).—Noticeably absent on the autumn migration. Usually a few on passage in September, but none were seen this year.

BLACK-NECKED GREBE (*Podiceps n. nigricollis*).—Five were seen on November 9th. Four were in a party, the other solitary at the opposite end of the reservoir.

H. TETLEY.

NOTES

MALLOPHAGA ON SICKLY BIRDS.

RECENTLY, through the kindness of Dr. Tom Hare, Director of the Poultry and Game Research Laboratories, I received a sample of Mallophaga collected from a Blackbird (*Turdus m. merula*), which was picked up in Dorsetshire. A post-mortem examination of the bird showed that it had been suffering from Coccidiosis. The breast of the bird was denuded of feathers and the greater part of the skin surface was heavily infested with Mallophaga. A few feathers were also sent by Dr. Hare and these were found to be very heavily laden with eggs of a Mallophagan.

The louse proved to be *Menacanthus spiniferus* (Piaget), and the eggs are almost certainly of this species, which is not, in my experience, that found commonly on the Blackbird. It is, however, a member of a large group of comparatively active Mallophaga.

In the *Ibis* (1935, p. 354), Dr. J. M. Harrison records an instance of a Jay (*Garrulus g. rufitergum*) being "rendered flightless by depluming lice". I am not aware of any such instances having been recorded although it is possible that records have been published in ornithological journals and have been overlooked in reviews of entomological literature. Unfortunately, it appears that the bird was not examined internally, and that no lice were found on the bird when it was picked up. I have examined numerous Jays but have never succeeded in finding many lice on them—in most cases none at all and, at the most, three specimens.

It is my belief that the occurrence of large numbers of Mallophaga on the Blackbird and the Jay was not the direct cause of the condition in which the birds were found but the result of an internal trouble which in turn resulted in the birds becoming considerably weakened and, in consequence, unable to free themselves of the lice to the extent to which they do so normally.

Although I am unable to give instances accompanied by adequate data I have learned from poulterers that sickly hens invariably have more lice on them than a normal healthy bird. It would be interesting to learn something about this aspect of parasitism.

GORDON B. THOMPSON.

BULLFINCHES IN A FLOCK.

ON January 12th, 1936, while walking on the links of the Berkhamsted Golf Club I saw a flock of fourteen Bullfinches (*Pyrrhula p. pileata*). The birds which were males and females in even numbers, although not actually sitting in pairs, were perched on, and flitting through, the tops of the gorse bushes quite close to the Club House and were not in any way nervous of the passers by.

As I have not seen nor can I find any record of this species going about in a flock, this seems of sufficient interest to record.

H. RAIT KERR.

BRAMBLINGS IN INNER LONDON.

ON March 5th, 1936, I received a message from Miss Mary Rew that some Bramblings (*Fringilla montifringilla*) were consorting with a flock of Chaffinches and Greenfinches on the open piece of ground in the Primrose Hill Park.

I went at once to see if I could see them, and after a time discovered a number of small birds in the grass. On a closer approach with the aid of field glasses I was able to pick out five or six Bramblings in the flock of about twenty House-Sparrows, Chaffinches and Greenfinches. On the 12th there were seven Bramblings and on the 18th only four. Some of the cock Bramblings were in very bright plumage.

D. SETH-SMITH.

COMMON BUZZARD IN SURREY.

WITH reference to my notes on this subject (*antea*, Vol. XXIX., p. 83, and Vol. XXVII., p. 26), I am able to record the further appearance of a Common Buzzard (*Buteo b. buteo*) in the Farleigh district of north-east Surrey, it being first reported to me as seen on October 30th, 1935. The bird frequented the same estate as in previous years, where it was accorded protection, but, unfortunately, used frequently to roost in a hill-top larch plantation some distance beyond the estate boundary. It came under my notice on November 2nd, 3rd, 16th, and December 1st and 8th. The presence of the Buzzard caused Rooks (*Corvus f. frugilegus*), which normally have their sleeping-quarters in a clump of trees about a quarter of a mile distant from the plantation, to shift to a point still farther away.

I regret to state that on December 15th, 1935, while walking through the larch plantation, I came across the body of this bird lying on the ground at the base of one of the trees, and near by was an empty cartridge case. From its fresh condition the bird must have been killed about two days previously.

though by whom I have been unable to trace. It was an adult male, length 533.4 mm., wing 368.3 mm. and weighed 1 lb. 14 oz.

The skin I have presented to the Natural History Museum, South Kensington.

HUBERT E. POUNDS.

SOUTHERN CORMORANTS IN DORSET, SUFFOLK, SUSSEX AND KENT.

MR. G. PAYNE informed us that on January 8th, 1936, at the Old Harry Rocks, Studland, near Swanage, he shot a Cormorant bearing a ring lettered "Museum Nat. Hist. Leiden, Holland 150629". Dr. Junge of the Rijksmuseum van Natuurlijke Historie, Leiden, Holland, tells us that this bird was ringed as a nestling at Lekkerkerk, Zuid-Holland, on May 26th, 1935. Dr. Junge also informs us that another Cormorant ringed at the same colony on June 27th, 1932, has been reported to him by Mr. F. Darby as having been shot at Oulton Broad, Suffolk, on December 11th, 1935.

Another Cormorant shot on the River Ouse, near Newhaven, Sussex, on February 11th, 1936, bore a Rossitten ring (B.31930). This ring, Dr. Schüz informs me, was put on the bird as a nestling at Rügen, in the Baltic, on May 28th, 1933, and is the second Cormorant ringed at Rügen which has been reported from England, the first ringed (B.49371) on May 30th, 1934, having been found near Faversham, Kent, on February 5th, 1935.

The birds breeding in Holland and the Baltic belong to the subspecies called the Southern Cormorant (*Phalacrocorax carbo sinensis*) of which only one example has hitherto been identified in the British Islands, this being a specimen collected at Christchurch, Hampshire, in February, 1873, and now in the Natural History Museum (see *Practical Handbook*, Vol. II, p. 399, footnote, and *Brit. B.*, Vol. XXIV., p. 23). These ringed individuals are therefore of considerable interest as confirming the bird's claim as an occasional visitor to our coasts.

Herr M. J. Tekke has kindly sent me a paper from *De Levende Natuur* (Vol. 38, 1934) in which he gives the results, up to 1933, of ringing Cormorants in Holland. Of 2,500 ringed no less than 329 were reported. Some of them have been reported from northern France and a good many from western France, but only a few from the Atlantic coasts of the Spanish Peninsula and Morocco. Much greater numbers go to the Mediterranean and are reported from the coasts of Spain and France and especially Tunisia, while a few get still farther east in Italy and even Jugoslavia.

Of the Rügen birds a few have been reported from western France, but most have found their way to the Mediterranean and especially round the coasts of Tunisia, while some go east of the Adriatic and a Grecian recovery is recorded.

H. F. WITHERBY.

STATUS OF LAND-RAIL IN KENT.

FORTY years ago the Land-Rail (*Crex crex*) was common as a summer resident in Kent, especially in the Darent Valley. During the last twenty years it has steadily declined in numbers and as far as I can ascertain it has ceased to nest in Kent, with a few exceptions; for instance, a pair nested in Wrotham Parish in 1934.

Quite a number pass through Kent in the autumn migration and are either seen or shot in September, and some as juveniles stay on almost up to the end of the year. For instance, a male was shot near Maidstone on December 30th, 1892, and a juvenile female in Sheppey on November 28th, 1935. Both skins are in the Maidstone Museum. JAMES R. HALE.

[From the evidence given in *A History of the Birds of Kent* it would seem that the decline in the numbers of Land-Rails nesting in the county began a good deal more than twenty years ago. According to the *Report on the Land-Rail Inquiry* (*Brit. Birds*, Vol. VIII., p. 85) its status in 1913 was clearly no more than a sparse and sporadic nester. Any actual nesting records since that time would therefore seem to be worthy of record.—EDS.]

CROSSBILLS BREEDING IN SURREY.—Mr. W. A. Cadman informs us that while watching a pair of Crossbills (*Loxia c. curvirostra*) at Kew Gardens on March 8th, 1936, he saw the hen collecting building material (apparently shreds of bark) from an oak tree. The birds flew to a maritime pine (*P. pinaster*) and Mr. Cadman saw the hen go to the beginnings of a nest near the end of a branch about forty-five feet from the ground. By the afternoon the nest was appreciably larger. We shall be glad to have details of any further instances of nesting in any part of the country.

FOOD OF SNOW-BUNTING.—Mr. C. M. N. White informs us that he found 80 seeds, all identical, in the stomach and crop of a Snow-Bunting (*Plectrophenax n. nivalis*), obtained on the coast of Lancashire, on January 14th, 1936. These were identified as referable to *Suaeda* (*Schoberia*) *maritima*.

The Rev. F. C. R. Jourdain states that these seeds have been previously identified in the stomachs of the species by P. Inghald and J. Cordeaux.

WOODCHAT SHRIKE RECORDED AS SEEN IN CAITHNESS.—Mr. P. Sinclair states (*Scot. Nat.*, 1935, p. 170) that a Woodchat Shrike (*Lanius senator*) was observed at Wick in the third week of September, 1935. No details of the bird's appearance are given and it is therefore impossible to judge whether the identification is likely to be correct or not.

SEXUAL DISPLAY BY HEDGE-SPARROW.—In 1929 M. Jacques Delamain described the extraordinary sexual display of the Hedge-Sparrow (*Prunella modularis*) (*antea*, XXIII., p. 19). At the time I remembered having read a similar account, but failed to trace the reference. Subsequently Mr. C. Noble Rollin (*t.c.*, p. 103), Mr. W. H. Gardam (p. 199) and Messrs. K. Orton, A. H. Meiklejohn and H. H. Gordon Clarke have all furnished independent corroboration.

Recently I came across what must be the earliest account of this strange behaviour, in the note-books of the late E. B. Dunlop, under the date of April 23rd, 1911: "Saw two Hedge-Sparrows behaving in an extraordinary manner near Troutbeck (Westmorland) on road. One quivered wings and tail and partially crouched, while the other kept pecking at the cloaca of the crouching bird".—F. C. R. JOURDAIN.

HEN-HARRIER IN ANGLESEY.—Miss M. Mitchell informs us that she saw a Hen-Harrier (*Circus c. cyaneus*) on Newborough Warren, Anglesey, on March 11th, 1936. The bird was buff-brown in colour, the rump strikingly white. The species is seldom recorded from Anglesey.

FULMARS BREEDING ON THE FARNE ISLANDS.—Fulmar Petrels (*Fulmarus g. glacialis*) were first seen haunting the Farne Islands in summer in 1919. Mr. F. H. Edmondson states (*Nat.*, 1935, p. 231) that the bird definitely bred there in 1935 and that this is the first season either an egg has been seen or the young have hatched. The late G. Bolam, in his *Catalogue of the Birds of Northumberland* (1932, p. 147), states, however, that "it was not until 1929 that any definite information of their actual breeding there was forthcoming". Perhaps Mr. Edmondson has overlooked this statement.

BLACK-NECKED GREBES IN JUNE IN NORTH-EAST SCOTLAND.—Mr. C. G. Connell records (*Scot. Nat.*, 1935, p. 147) that he had an excellent view, on June 14th, 1935, of two pairs of Black-necked Grebes (*Podiceps n. nigricollis*) on a loch in "one of the north-eastern counties" of Scotland. From their anxious behaviour the birds were thought to be nesting.

LETTERS.

GREENFINCH'S REPEATED RETURN TO TRAP.

To the Editors of BRITISH BIRDS.

SIRS,—In view of Mr. Lack's note on the repeated re-trapping of Robins (*antea*, p. 288), I may mention that in the winter of 1929-30, when at Cambridge, I had a Sparrow trap in the garden "baited" with seed. Greenfinches (*Chloris ch. chloris*) were constantly caught, and one male in particular which was ringed was taken from the trap eleven times in a comparatively short period. As this happened so often I put him in a small cage one morning at about 10 a.m., covered it, and took it in a car to the top of the Gog Magog Hills, about five miles from Cambridge, where I released him. The following morning at 10.30 he was back in the trap. After this I recorded him there seventeen times, and as I then left Cambridge I made no more records for some weeks.

This bird mated and the nest was built in the garden next door and the brood safely hatched out.

H. RAIT KERR.

SOUNDS PRODUCED BY LITTLE OWL.

To the Editors of BRITISH BIRDS.

SIRS,—Miss Hibbert-Ware thinks the sound I allude to as the "snoring" of the Little Owl must be a sound apparently made by young birds in their first summer (*antea*, p. 332). But if she will look at the chart again she will see that I record it as regularly heard through March and April. I happen to have heard it to-day (March 3rd) for the first time this year. Several times I have tracked it to a Little Owl tree, from which the adult bird has flown out. In some years, when in Little Owl country, I have heard it pretty constantly day after day in the early spring. So it can hardly be the sound referred to by Miss Hibbert-Ware. Brown Owls at this time of year sometimes make a similar "snoring" gurgle. So I admit it is illogical to give the hooting of the Brown Owl and the "snoring" of the Little Owl as their respective "songs". But one of the curious facts of bird-song and bird-cries is that similar sounds coming from nearly-related species sometimes seem to have different significance.

H. G. ALEXANDER.

REDSHANKS DISPLAYING IN DECEMBER.

To the Editors of BRITISH BIRDS.

SIRS,—Referring to the note on this subject (*antea*, p. 328), at noon on December 2nd, 1925, I saw a Redshank, presumably a male, chasing another on the ground near the seashore in west Somerset. Both birds described a kind of zig-zag course, the pursuer running with outstretched head and wings fully spread, and keeping outside the pursued. As the bird ran it trilled excitedly. When at close quarters it leaped in the air and hovered over the other, presumably a female. The latter took to flight, and the chase was continued on the wing. The weather was very cold, the wind being S.E., and the ground hard with frost except where thawed by the sun, which was shining brightly.

E. W. HENDY.

SEA-BIRD MOVEMENTS.

To the Editors of BRITISH BIRDS.

SIRS,—I have read with interest the observations of Mr. Trahair Hartley and Mr. Seton Gordon on the movements of sea-birds. My notes on the subject may not be of much value; however, I give them, such as they are.

From a study of birds in Shetland waters, I should say that all sea-bird movements, apart from the actual migrations, are concerned with the getting of food. The following notes apply to Kittiwakes (*Rissa t. tridactyla*) and Common Guillemots (*Uria a. aalge*).

Noss, an island on the east side of Shetland, is the chief breeding place, in the islands, of these two species. From May till September, Noss becomes the hub of a huge rimless "wheel" with "spokes" in the form of streams of these birds going to and from feeding grounds, in every direction. One of the largest of these streams, an outward one, passes north along the land as far as Yell Sound, through which it turns westward until it rounds the Ramna Stacks, 35 miles from Noss, and becomes lost in the Atlantic. During the past summer I have given this stream some attention and have discovered a few interesting facts.

While at sea one day I made an attempt to count the number of Kittiwakes in this outward stream and although flocks of various size composed of from 6 to 50 individuals, were passing my boat at intervals of from 10 to 40 seconds, it proved comparatively an easy matter to count the birds and I was surprised to discover that, on an average, 524 Kittiwakes were passing every fifteen minutes, or something between 40,000 and 50,000 every 24 hours. I here assume that this stream is continuous day and night, as I have seen it in the early morning, at all hours of the day and late at night. There is little or no darkness in this latitude in summer. My next discovery was that the direction of the wind affects the route taken by outward bound Kittiwakes. With a head wind from north to north-west, the birds hug the land, sweeping into bays and rounding many of the headlands, but, occasionally taking short cuts over necks of land. With favourable winds a more direct route is taken and that well off the land. This fact may have a bearing on the large number of birds seen passing Cape Cornwall with certain weather conditions, probably head winds. At a distance of only a few miles from Noss, one may see many thousands of outward bound Kittiwakes and, if the sky is overcast, not a single one returning. If the sky be clear, however, the returning birds may be seen at a great height, anything from 2,000 to 5,000 feet. On a beautiful clear evening, last summer, some friends and I estimated the height of a large number of these birds judging from their very small size, as seen through binoculars, at not less than 5,000 feet. I am not prepared to state that Kittiwakes always return to their nesting ledges at these altitudes, as my notes on this subject only began last summer, but my earlier recollections of Kittiwake streams seem to be always of outward going ones, at their usual height of a few feet above the sea. If these altitudes are usual for returning birds, the explanation may lie with the Skuas which have no interest in outward going birds but have a very definite interest in the full stomachs of homeward-bound Gulls and Terns. Possibly Kittiwakes fly high to escape the attentions of the Arctic and Great Skuas. I hope to make further notes on this interesting point during the coming season.

In a count of Common Guillemots, I found that the outward going stream which passes between the island of Whalsay and the mainland, does so at the rate of over 90,000 in the 24 hours. Outward and homeward-bound Common Guillemots keep to the same routes, no matter what the weather, and at approximately the same height above sea-level, that of a few feet. Occasionally with a fair wind they may be seen flying at a height of perhaps 40 to 50 feet. Fog seems to have no effect whatever on the flight of Guillemots while going to

and from feeding grounds. To fly without the slightest trace of uncertainty, at the speed of an express train, from feeding grounds which may be considerably over 50 miles away, through the thickest of fogs, and arrive unerringly at a nesting ledge, is surely an amazing performance. It may be asserted that Guillemots never fly over land; rather will they fly half-a-dozen miles to get round a headland than cross a narrow neck of land which would mean a considerable short cut. The most westerly stream of these birds approaching Noss from the north sweeps into a bight and then rounds a headland thereby going considerably out of a straight course for no obvious reason. On an occasion, while at sea a few hundred yards from this headland, when it was obscured by dense fog, I was astonished to note this stream of birds making a sweep round the headland at a distance which made it impossible for them to see the land. Can it be possible that they were actually approaching and rounding a headland without seeing it? It looked very much like a certainty. I suppose it may be assumed that their eyesight is no better than ours in fog. Guillemots approaching Noss from the open sea or eastward fly in a more direct manner. In the summer of 1934, while making a passage from Norway to Lerwick in fog, I was able to make use of this fact and passed Noss within a mile, with confidence, without ever seeing the island.

It may interest some of your readers to know that Little Auks (*Alle alle*) are very numerous around Shetland this winter. On the 28th of January, while on a passage from Yell to Lerwick, I saw what must have been considerably over a thousand of these interesting little birds.

G. T. KAY.

LERWICK.

February 25th, 1936.

REVIEW.

How to Know British Birds. By Norman H. Joy, M.R.C.S., M.B.O.U., F.R.E.S. (Witherby). Coloured and Black and White Plates. 5s. net.

THIS little book is very good value for money and can be recommended to beginners and others who want a cheap and reliable pocket book to help them to identify birds in the field. All species breeding anywhere in the British Islands, all visitors that are recorded to some extent every year, and vagrants known to have occurred on more than a hundred occasions are included, and a remarkable amount of information is compressed into the text under the headings "Description", "Field Characters", "Nest", and "Distribution". Though the principle on which the items of information given are distributed between the first two of the sections named is not always obvious, they form together a useful and practical key to field identification, the critical or diagnostic characters being printed in italics. A novel aid to identification is an index of a large number of distinctive or notable features of appearance, habits or habitat, so that if, for instance, a bird is seen with a white rump or markedly undulating flight, the several possibilities can be quickly ascertained and looked up in the body of the book. There is also a brief section with some notes on songs and calls as an aid to identification.

The identification paragraphs are well and reliably done. Probably no two experienced observers drawing up such a condensed field guide would agree completely in every species as to the characters which should or should not be included, and we might criticize points of detail

here and there, but they would be points of detail only. It may be mentioned, however, that the description of the Willow-Tit's note as "*ché ché ché*" and that of the Marsh-Tit as "*pit-y-chou*" is liable to mislead the reader by obscuring the fact that the Marsh-Tit has also a freely-used "*ché ché ché*" note, the real point being that the corresponding note of the Willow-Tit is deeper and harsher. In the description of the Pied and White Wagtails, though it is stated that the upper parts of the latter are "paler ashy-grey with no signs of black", it would have been better to have stated expressly that in pale-backed female Pies it is the shading off of the grey into black *on the rump* which most effectively distinguishes them from Whites. The Hobby would be better described as inhabiting "well-timbered" rather than "wooded" districts, as in some of its haunts it habitually breeds in hedgerow trees. The Stone-Curlew and Dotterel are not the only two British waders that do not normally lay four eggs (p. 77); the Oyster-catcher and Kentish Plover should be added. The description of the female Gadwall as "much like female Mallard, but bill dusky", overlooks the useful point that it shows much more orange at the sides than the bill of the female Mallard ever normally does.* The somewhat startling description of the Song-Thrush as "olive-green" is presumably a slip for "olive-brown". The only obvious misprint we have noticed is on the last line of page 73, where "formally" should be "formerly".

A feature of the book is the series of 40 plates, 16 in colour and 24 in monochrome, the latter comprising a large number of drawings prepared with the wholly admirable object of bringing out those features of form, colour or action which are important in field identification. Where not copied from published figures the sketches are apt to be a little crude and "wooden" and are not invariably above criticism on other grounds. But it is doubtless from the point of view of their utility in the field and not on artistic or technical grounds that the author would wish them to be judged, and in the main they are quite effective in showing what they are intended to show. Here and there, however, there are points which might have been improved. The distribution of black and white on the under-wing of the Magpie is definitely wrong and the figure of the "drumming" Snipe has been so inserted that the bird is flying upwards instead of downwards, as it should be. The drawing of the Golden Plover in breeding dress, though purporting to show the British bird, is evidently based on a figure of the northern race, with the black and white on the head more definite and clear-cut than in ours. The sketch of the head of the Red-throated Diver misses the distinctive "tip-tilted" character of the bill, while the winter Black-necked Grebe is shown with a black neck, which is not, of course, correct for the full winter plumage, though it might possibly pass for some sort of transition stage, and so on. . . . But none of these points is really serious and the fact remains that here is a book at an extremely moderate price written by a competent field observer on eminently practical and useful lines, deserving a wide sale both amongst budding ornithologists and more casual observers who like to be able to give a name to the birds they see. We hope that to many it will serve as a stimulus to learn more and as a helpful stepping-stone to the more detailed works.—B.W.T.

* Oddly enough the *Practical Handbook* does not mention orange or reddish yellow colouring in connexion with the bill of the female Mallard at all, but a good many individuals show some.

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CONTENTS OF NUMBER 12, VOL. XXIX., MAY 1, 1936.

	PAGE
Birds seen in the North Atlantic, August and September, 1935. By K. B. Rooke, M.B.O.U.	366
Nesting Habits of the Willow-Tit in Cumberland. By Tom L. Johnston	378
Redshank Nesting at Tring Reservoirs: an Effect of the Drought. By Charles Oldham	381
Notes :—	
Bullfinches in a Flock in Worcestershire (A. J. Harthan) ...	384
Bullfinches in a Flock, and Hawfinch in Glamorgan (G. C. S. Ingram and H. M. Salmon)	384
Crossbills Breeding in England	384
Short Notes :—	
Great Grey Shrike in Suffolk. Waxwing in Warwickshire.	386
Reviews :—	
<i>The Birds of the Firth of Clyde, including Ayrshire, Renfrew- shire, Buteshire, Dumbartonshire and South Argyllshire.</i> By J. M. McWilliam	386
<i>Birds of the Green Belt.</i> By R. M. Lockley	387
Letter :—	
"Territory" recorded for Nightingale in seventeenth century (W. B. Alexander)	388
Woodland Bird Enquiry (David Lack)... ..	388

7 MAY 1936
PURCHASED



BIRDS SEEN IN THE NORTH ATLANTIC, AUGUST AND SEPTEMBER, 1935.

BY

K. B. ROOKE, M.B.O.U.

THIS account is based on notes made in 1935, between Liverpool and St. John's, Newfoundland, in the s.s. "Nova Scotia" (westbound, August 2nd-8th) and in the s.s. "Newfoundland" (eastbound, September 10th-16th). A short account of a double transect by the author on the same route, at practically the same dates, in 1934, has already appeared in *British Birds* (XXVIII., p. 269). Since the latter was written, our knowledge of North Atlantic birds has been greatly increased by the publication (1935) of V. C. Wynne-Edward's *Habits and Distribution of Birds on the North Atlantic*. From this it would appear that, though a considerable amount is known on the subject, there still remains much to be discovered, and additional records are needed both to strengthen theories already put forward and to provide material on which future ideas may be built up. The present paper has been written with a view to providing facts rather than theories.

I have to thank the officers of the "Nova Scotia" and "Newfoundland" for their help, especially Second-Officer E. Sainty of the "Nova Scotia". My thanks are also due to Surgeon-Commander Murray Levick, chief leader of the 1935 expedition of the Public Schools Exploring Society, of which I was a member, for permission to publish this account here.

GREENLAND WHEATEAR (*Enanthe æ. leucorrhoa*).

The first noted was on the return voyage, on September 13th, when one came on board in $54^{\circ} 02' \text{ N.}$, $30^{\circ} 51' \text{ W.}$, in practically a straight line between Cape Farewell, Greenland, and the Portuguese coast. During the remainder of the day several were seen at intervals. On the 14th two came on board in $55^{\circ} 05' \text{ N.}$, $20^{\circ} 30' \text{ W.}$, while on the 15th one was picked up dead in about $50^{\circ} 10' \text{ N.}$, $11^{\circ} 30' \text{ W.}$ It had not been dead more than a few hours.

These observations show that in mid-September Greenland Wheatears were present in mid-ocean between 31° W. and 11° W. , in 54° - 55° N. In 1934 I saw birds on practically the same dates between $36^{\circ} 50' \text{ W.}$ and 10° W. in the same latitude (*antea*, XXVIII., p. 274). It would therefore appear that they occur annually in this area. Whether the more westerly of these birds were on their normal migration route

or had been driven off their course by adverse weather conditions it is difficult to say. If the former, then it would seem that not only do they undertake a 1,200 mile sea-crossing from Greenland to Ireland, but some may even accomplish an 1,800 mile journey to the Portuguese coast. Such feats seem well nigh impossible for so small a bird, yet the only alternative is a series of shorter crossings by way of Iceland, the Faroes and the British Isles. But if this is the only route used, it is difficult to account for birds so far south and west as 54° N. and 30° to 37° W., especially when the prevailing winds were between N.W. and S.W.

GANNET (*Sula bassana*).

Fairly common off the North Irish coast on August 3rd; during four and a half hours' watches I counted 76 (ratio of adults to immature, 4:1). Out of soundings on the same day I counted 51 in one and a half hours (2.9 adults : 1 immature). They were still common at dusk (55° 30' N., 10° W.). This year I saw none off the Newfoundland coast, probably owing to the fact that the weather made observation difficult. At 10.15 a.m. on September 14th an adult was seen in 54° 23' N., 23° W., 460 miles from the Irish coast; this is, perhaps, a record distance from land. On the 15th one was seen in 55° 20' N., 11° 10' W., some 50 miles outside the 100-fathom line, and another two hours later.

LEACH'S PETREL (*Oceanodroma l. leucorrhoa*).

As will be seen from the census graph of this species (fig. 1), on the outward voyage we encountered a considerable concentration between 41° 30' W. and 45° W. (ca. 51° N.) on August 7th. Three watches of an hour each gave an average of 156 birds per hour, that taken in the region of 44° 30' W. alone giving 375 in one hour. The next day a count taken in about 48° 20' N., 50° W. gave 66 in an hour, and thereafter until close to the Newfoundland coast, whenever observation was possible, they appeared to be common. The only ones noted in August east of 40° W. were two on the 6th, one in 53° 20' N., 34° 15' W. and one in 52° 40' N., 36° 50' W. (cf. *Antea*, XXVIII., p. 271). None of these birds followed the ship for long.

On the return voyage circumstances unfortunately rendered census-taking impossible, so that I have no figures for comparison with those obtained in August. On September 10th and 11th Leach's Petrels were not uncommon (52°–51° W.

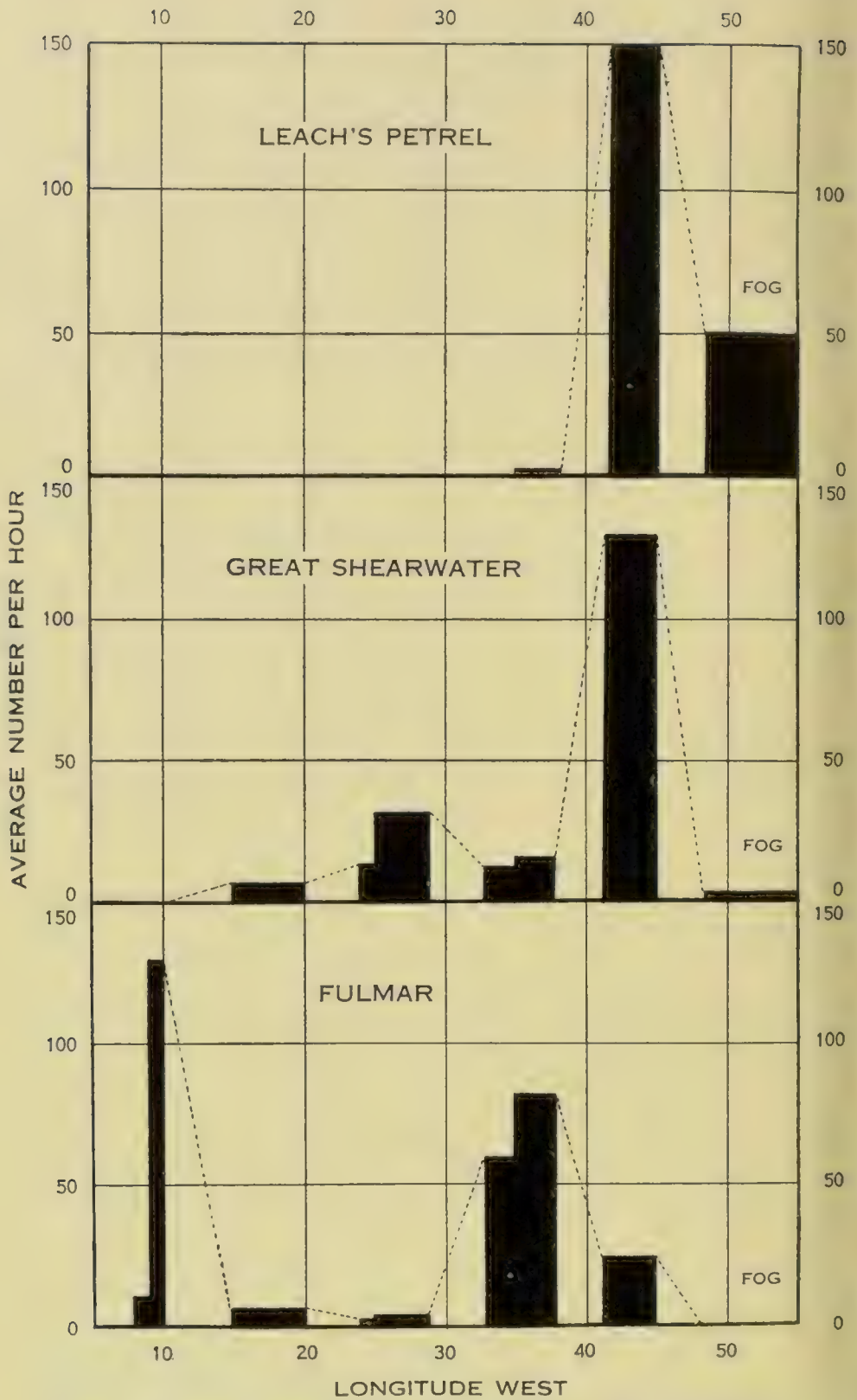


FIG. 1.—Census graphs of Leach's Petrel, Great Shearwater and Fulmar, August 3rd-8th, 1935. Broken lines represent changes during hours of darkness.

and 47° – 45° W.). On the 12th I saw three at intervals near 52° $10'$ N., 39° W., while on the 13th I saw only one small Petrel, which may have been a Storm-Petrel (*Hydrobates pelagicus*), in 54° $10'$ N., 30° $25'$ W. On September 14th (54° $49'$ N., 21° $38'$ W., at noon) we encountered a second belt of Leach's Petrels. During the morning only two were seen, but at 1.20 p.m. I counted between 150 and 200 following in the wake, many of them close enough to make identification certain. At 4.20 p.m. they were still very numerous, at least 150 following the ship. Thus between about 21° $30'$ W. and 20° W. there was a marked concentration of this species, whereas in August there had been none in that region (cf., September 16th, 1934, *antea*, XXVIII., p. 273). On the 15th (55° $08'$ N., 11° $57'$ W. at noon) two or three were following the ship most of the day until about 3.0 p.m.

All the small Petrels definitely identified were Leach's. A few of the above records may refer to Storm-Petrels, but, though looked for carefully, none were identified.

MANX SHEARWATER (*Puffinus puffinus*).

On August 3rd a 75-minute count, about mid-way between Belfast Lough and Rathlin Island, gave a total of 75 Manx Shearwaters (including a few parties of 15-20). The last one was seen near Inishtrahull. Outside the offshore zone in British waters I only saw 3 small Shearwaters. Two on September 13th in 54° $16'$ N., 28° $18'$ W., and one on the 14th in 54° $42'$ N., 23° $20'$ W. So far as I could tell these were *Puffinus puffinus*, but, as Wynne-Edwards (1935, p. 269) points out, it is unsafe to say definitely that oceanic records refer to this species, since *P. assimilis* is said to resemble it fairly closely.

GREAT SHEARWATER (*Puffinus gravis*).

I saw none east of 15° W. on the outward voyage. West of this they were seen every day, and the results of counts are analysed by 5° zones of longitude in the following table:—

Table I.—GREAT SHEARWATER, 1935.

Longitude.	Average No. per hour.	No. of watches (hours).	Date.
15 – 20° W.	7	3	Aug. 4
20 – 25° W.	14	2	Aug. 5
25 – 30° W.	32	3	Aug. 5
30 – 35° W.	14	2	Aug. 6
35 – 40° W.	17	$2\frac{1}{2}$	Aug. 6
40 – 45° W.	129	3	Aug. 7
45 – 50° W.	3 (fog)	1	Aug. 8

West of 50° W. only a few were seen, on the Grand Bank off Newfoundland, on August 8th. The above records are drawn up on a census graph (fig. 1) for comparison with Fulmar and Leach's Petrel.

As will be seen from Table 1, there was a marked concentration of this species between 40° and 45° W., on August 7th. Actually they were not particularly numerous until after mid-day ($50^{\circ} 51' \text{ N.}, 43^{\circ} 25' \text{ W.}$) and did not reach their maximum abundance until some three hours later ($50^{\circ} 35' \text{ N.}, 44^{\circ} 20' \text{ W.}$). In this region we passed through very large numbers for about an hour and a half (*ca.* 21 miles). We passed one "raft" of 150 birds resting on the water, besides many smaller ones. Later a 40-minute count gave 240 birds. I witnessed one curious incident which I find it hard to explain:—A Great Shearwater resting on the water raised its wings above its head and appeared to struggle to get off the water. For fully a minute it circled round as if wounded or gripped from below, before it eventually rose into the air. Possibly it may have been experiencing difficulty in rising owing to the faint breeze which was blowing at that time, yet others did not seem to have the same trouble.

On the return voyage I was able to do relatively little observing, but noted that Great Shearwaters were not uncommon between 47° and $12^{\circ} 30' \text{ W.}$ (September 11th-15th). No very significant change in density was observed over this range, nor was I able to come to any very definite conclusion as to their relative abundance as compared with August.

SOOTY SHEARWATER (*Puffinus griseus*).

Owing to its relative scarcity there are comparatively few records of this species in the North Atlantic. I was fortunate in seeing 17 birds on the double transect in 1935, as in Table 2.

Table 2.—SOOTY SHEARWATER, 1935.

Date.	Number.	Position.	Remarks.
Aug. 3	1	$55^{\circ} 26' \text{ N.}, 9^{\circ} 38' \text{ W.}$	Just out of soundings, N.W. Ireland.
Aug. 4	1	$55^{\circ} 14' \text{ N.}, 19^{\circ} 18' \text{ W.}$	
Aug. 7	1	$50^{\circ} 46' \text{ N.}, 43^{\circ} 42' \text{ W.}$	
—	3	$50^{\circ} 27' \text{ N.}, 44^{\circ} 36' \text{ W.}$	Among large numbers of <i>P. gravis</i> .
Aug. 8	1	$48^{\circ} 28' \text{ N.}, 49^{\circ} 46' \text{ W.}$	Outer edge of Grand Bank.
—	3	$47^{\circ} 45' \text{ N.}, 52^{\circ} 20' \text{ W.}$	Grand Bank.
—	1	$47^{\circ} 40' \text{ N.}, 52^{\circ} 30' \text{ W.}$	6 miles off St. John's.
—	1	$47^{\circ} 35' \text{ N.}, 52^{\circ} 35' \text{ W.}$	2 miles off St. John's.
Sept. 12	1	$52^{\circ} 30' \text{ N.}, 37^{\circ} 32' \text{ W.}$	
Sept. 13	3	$54^{\circ} 08' \text{ N.}, 30^{\circ} 00' \text{ W.}$	Following for an hour.
Sept. 14	1	$54^{\circ} 45' \text{ N.}, 23^{\circ} 00' \text{ W.}$	

On this same route in 1934, and at approximately the same dates, I saw only 5 (*antea*, XXVIII., p. 275), so that their numbers evidently vary from year to year. Of the eight transects undertaken in 1933 by Wynne-Edwards (1935, p. 237), the two most nearly corresponding with mine as regards dates are:—Eastbound, July 29th-August 4th, and westbound, September 10th-16th, both between Montreal and Southampton, via Belle Isle. He saw 18 Sooty Shearwaters on the first, and 2 on the second (1935, p. 262). These records of a total of 42 Sooty Shearwaters have been drawn up on two charts, one for early August and one for mid-September (figs. 2 & 3).

From these charts it would appear:—

- (1) That in August Sooty Shearwaters are much commoner on the American side of the North Atlantic (W. of 30° W.) than on the British side.
- (2) That in August they are fairly numerous west of 45° W., especially on the Grand Bank and near Belle Isle (in soundings). The absence of records from the Grand Bank in September may be due to the fact that I was able to do little observing in that region.
- (3) That they are distinctly scarce in mid-ocean (20° – 40° W.) in early August, but less so in mid-September.

Apart from these conclusions it appears to me that the Sooty Shearwater is much more addicted to the offshore zone than is the Great Shearwater. I only saw a very few of the latter species on the Grand Bank, and none elsewhere in soundings, compared with large numbers in the pelagic zone; while of the 17 Sooty Shearwaters seen in 1935, 6 were in soundings, one of them only two miles from land.

FULMAR (*Fulmarus g. glacialis*).

As with the Great Shearwater, I was able to obtain some indication of the relative abundance of this species in various parts of the route traversed, by taking counts of the total number seen in each hour's watch.* This was only possible on the outward voyage, the figures for which are given in Table 3.

* Note that an attempt was always made to count the *total* number per hour, and not the average number following in any one hour, as Wynne-Edwards did. This method was found to give a better idea of their numbers, as frequently a good many would be seen without any following in the wake.

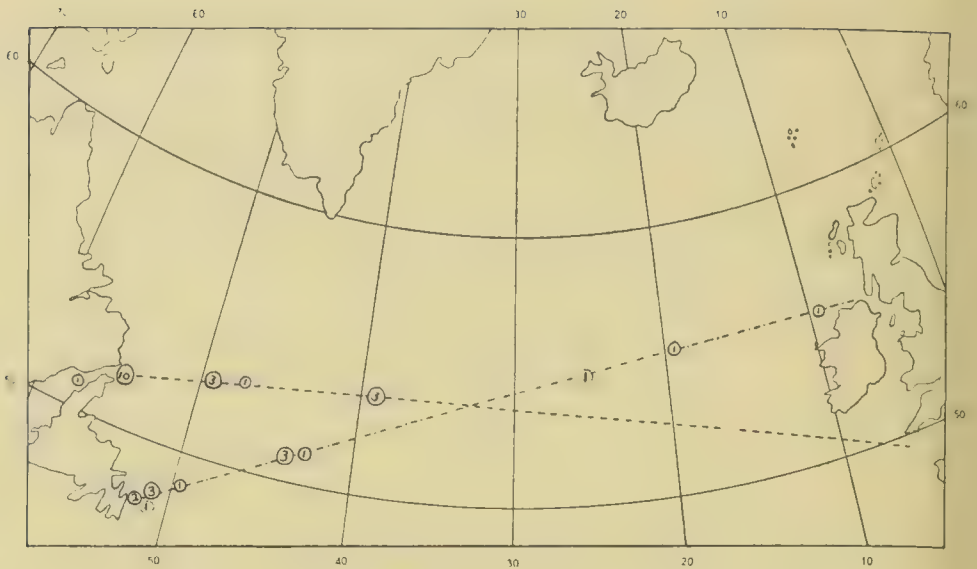


FIG. 2.—SOOTY SHEARWATER. Early August.

Explanation :—

- ①--- V. C. Wynne-Edwards, Eastbound, July 29th-Aug. 4th, 1933.
- ①--- K. B. Rooke, Westbound, Aug. 3rd-9th, 1934.
- ①--- K. B. Rooke, Westbound, Aug. 2nd-8th, 1935.

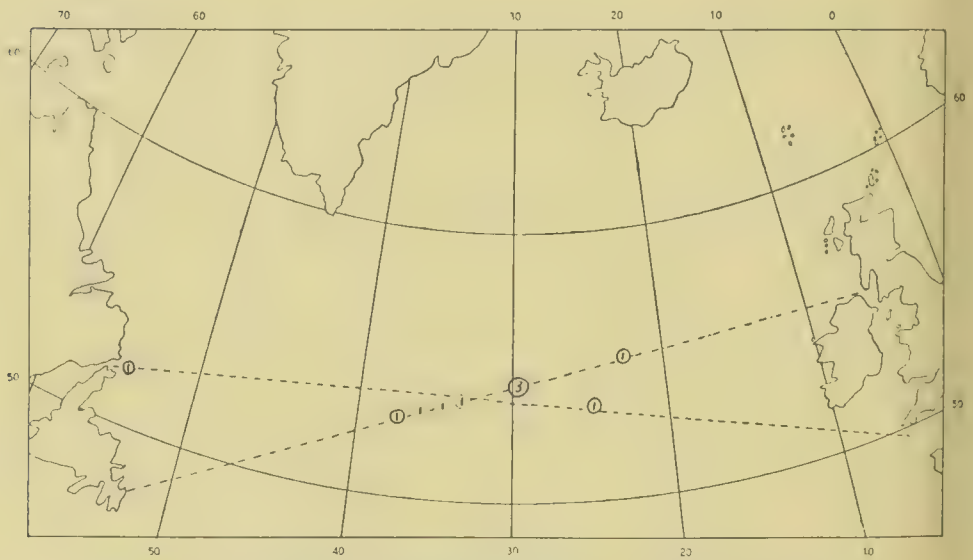


FIG. 3.—SOOTY SHEARWATER. Mid-September.

Explanation :—

- ①--- V. C. Wynne-Edwards, Westbound, Sept. 10th-16th, 1933.
- ①--- K. B. Rooke, Eastbound, Sept. 12th-18th, 1934.
- ①--- K. B. Rooke, Eastbound, Sept. 10th-16th, 1935.

Table 3.—FULMAR, 1935.

<i>Longitude.</i>	<i>Average No. per hour.</i>	<i>No. of watches (hours).</i>	<i>Date.</i>
8° W.—100-fathom line	10	1½	Aug. 3
10° W.—100-fathom line	130	1½	Aug. 3
10-15° W.	—	0	—
15-20° W.	6	3	Aug. 4
20-25° W.	2	2	Aug. 5
25-30° W.	4	3	Aug. 5
30-35° W.	60	2	Aug. 6
35-40° W.	82	2½	Aug. 6
40-45° W.	23	3	Aug. 7
45-50° W.	0 (fog)	1	Aug. 8

The census graph (fig. 1) for this species is based on the above figures. It will be noticed that on the outward transect Fulmars were relatively scarce between 15° and 30° W., while there was a very marked concentration in the vicinity of 10° W. (55° 30' N.), probably of British breeding birds recently come to sea. And at the same time on the American side of the Atlantic, though less dense in any one place, they occurred over a fairly wide belt in some numbers (30°-45° W.).

As might be expected, by September Fulmars were more evenly distributed across the centre of the area. Between 50° and 15° W. (September 11th-14th) they were abundant, but slightly less so in about 30° W. than elsewhere. On September 14th they were particularly numerous all day (54° 50' N., 21° 38' W. at noon). By September 15th (11° 57' W. at noon) the great concentration seen off N.W. Ireland (10° W.) on August 3rd had largely disappeared, for they were fairly scarce all day.

Most of the birds seen in August were in moult, and this was not over by mid-September, for on the 12th I saw one with only two functional primaries on either wing. The change in numbers at the 100-fathom line was seen most strikingly off N.W. Ireland on August 3rd; at 7.5 p.m. 15 were following in the wake, but by 7.15 over 120 were following. On enquiry at the bridge I found that we crossed the 100-fathom line at about 7.14 p.m. As has repeatedly been noticed, the so-called Blue Fulmar is considerably commoner on the American side of the Atlantic than on the British (Wynne-Edwards, 1935, p. 270). I saw none east of 30° W., whereas between 40° and 45° W. on August 7th no less than 8 per cent. were of this variety.

PHALAROPE (*Phalaropus* sp.).

A party of about 10, apparently flying due west (!) in $55^{\circ} 0' \text{ N.}$, $21^{\circ} 15' \text{ W.}$, on September 14th.

ARCTIC TERN (*Sterna macrura*).

This was the only species of Tern identified off the N. Irish Coast on August 3rd. They were most numerous in the neighbourhood of Belfast Lough. The autumn transatlantic migration of this species was apparently only just beginning in early August, for I only saw one party in the pelagic zone, namely, 4 in $53^{\circ} 24' \text{ N.}$, 34° W. on August 6th. In September, however, the migration was evidently in full swing, birds being seen as follows between 40° and 20° W. :—One in $51^{\circ} 55' \text{ N.}$, $39^{\circ} 49' \text{ W.}$, on September 12th; 22 in an hour in $54^{\circ} 15' \text{ N.}$, 30° W. on the 13th. On the 14th, 20 in a short time round 10.0 a.m. ($54^{\circ} 45' \text{ N.}$, 23° W.) and a number between 1.10 and 1.20 p.m. (55° N. , $21^{\circ} 15' \text{ W.}$); I saw the tail-end of the latter short movement and counted 15 in three minutes.

It might be imagined that one could form a fair idea of the general trend of this migration by observing the direction of flight of each party. In actual fact an analysis of all these records gave an average direction of about W.S.W., but though the majority were flying between N.W. and S., a few were seen flying in practically any direction. It is a little disconcerting to find that a more detailed analysis of a greater number of records (Wynne-Edwards, 1935, p. 328), together with ringing returns, has shown that the autumn transatlantic migration is from west to east, as would be expected. The probable explanation of this discrepancy is that the Arctic Tern, on its long transatlantic journey, instead of flying with purpose direct to its goal, wanders somewhat erratically over the ocean, influenced, perhaps, by wind and other conditions. This is strange, in view of the fact that they very rarely feed out of soundings, probably owing to the absence of suitable food (Wynne-Edwards, 1935, p. 326).

BLACK-HEADED GULL (*Larus r. ridibundus*).COMMON GULL (*Larus c. canus*).

These two species are generally referred to as typical inshore birds (i.e. shore-feeders). They rarely occur more than a short distance from land, and I was rather surprised to see them following the ship off N. Ireland on August 3rd.

Altogether I saw 3 Common Gulls (one at least 8 miles from the shore), and 12 Black-headed Gulls. In 1934 I saw none on the same route.

HERRING-GULL (*Larus argentatus*).

BRITISH LESSER BLACK-BACKED GULL (*Larus fuscus gracillius*).

GREAT BLACK-BACKED GULL (*Larus marinus*).

A few of the latter species were seen until about fifteen miles from land, but none later, on August 3rd. On the same day Herring-Gulls followed in great numbers, though after we crossed the 100-fathom line there were never more than 20 in the wake. At 9.0 p.m. (10° 06' W. and 62 miles from land) at least one was still following. The average ratio of adults to immature birds was 80:1; remarkably high. There were always some adult British Lesser Black-backed Gulls in the wake up to 9° 50' W. (over 50 miles from land); the maximum number seen was 12.

A few Herring-Gulls were noted close to the Newfoundland coast on August 8th and September 10th. No true pelagic records were obtained.

KITTIWAKE (*Rissa t. tridactyla*).

There were rarely less than 2 or 3 in sight all day on August 3rd, right up to 10° W., and after we had crossed the 100-fathom line. Off the N. Irish coast the ratio of adults to immature birds was 2.5:1, though once away from land only adults were seen. During an hour's watch on the morning of August 4th, in about 55° 30' N., 15° 30' W., I saw 3 adults. Apart from these birds my observations are in agreement with Wynne-Edwards's statement that Kittiwakes, including non-breeding birds, are virtually absent from the pelagic zone between mid-June and mid-August (1935, p. 321), for I saw no others until a short distance off the Newfoundland coast on August 8th. Even by mid-September, they do not seem common in the pelagic zone, for I only saw two before reaching British coastal waters:—One immature bird on September 14th in 54° 45' N., 23° W., and one in 55° 20' N., 10° W. on the 15th (*cf. antea*, XXVIII, p. 275).

GREAT SKUA (*Stercorarius s. skua*).

Table 4.—GREAT SKUA, 1935.

Date.	Number.	Position.	Remarks.
Aug. 3	2	55° 30' N., 9° 20' W.	Just out of soundings.
Aug. 6	1	52° 40' N., 37° 10' W.	
Aug. 7	1	50° 30' N., 44° 25' W.	
—	2	50° 25' N., 44° 40' W.	

Table 4.—GREAT SKUA, 1935—*continued*.

<i>Date.</i>	<i>Number.</i>	<i>Position.</i>	<i>Remarks.</i>
Sept. 10	1	12 miles N.E. of St. John's.	In soundings.
Sept. 12	1	51° 55' N., 39° 50' W.	
—	2	52° 20' N., 38° 20' W.	
Sept. 14	1	54° 45' N., 23° 00' W.	
—	2	55° 00' N., 21° 15' W.	
Sept. 15	11	Between 12° 45' W. & 10° W. (55° 10' N.)	At intervals during day.

It will be seen from Table 4 that by early August the Great Skua is present in the pelagic zone west of long. 30° W., although it is not certainly known to breed west of Iceland (Wynne-Edwards, 1935, p. 313). Of the 24 seen on the two transects, 16 were on the British side of the Atlantic and 8 on the American. Three times as many were noted in September as in August.

POMATORHINE SKUA (*Stercorarius pomarinus*). ARCTIC SKUA (*S. parasiticus*). LONG-TAILED SKUA (*S. longicaudus*).

Since the great majority of small Skuas seen went unidentified, these three species are treated together. On August 4th 5 were seen at intervals during the day (16°–19° W.); 2 of these were dark birds (probably Arctic). On the 5th (25°–29° W.) 4 were noted, of which one was an adult Long-tailed Skua and another probably a dark phase Arctic; 11 were seen on August 6th (7, 33°–35° W., and 4, 35°–38° W.), only one of which was definitely identified—an adult Long-tailed Skua. All these were travelling singly, except for one couple. On the 7th, 9 were seen (43°–45° W.), including 4 adult Long-tailed Skuas.

In September, although I was able to do considerably less observing, I saw more small Skuas (53, as compared with 29 in August). On the 10th 3 adult Long-tailed Skuas were seen about four miles off St. John's; on the 12th, 1 (sp?) in 39° 20' W., and 12 in an hour on the 13th in about 30° W., of which 1 was an adult Long-tailed. On the 14th I saw 25 in an hour and a half, between 22° and 23° W.; 2 of these were adult Pomatorhines, 2 adult Arctics and 1 apparently a dark phase Arctic. On the same day 6 (sp?) were seen in 55° N., 21° 15' W. and 3 in 20° 20' W. On September 15th 3 were noted in 12° 40' W.

As regards the difficulty of ascertaining the direction of flight, the same thing applies to the Skuas as to the Terns.

RAZORBILL (*Alca torda*). GUILLEMOT (*Uria aalge*). BLACK GUILLEMOT (*Uria grylle*). PUFFIN (*Fratercula arctica*).

As typical offshore birds these species may most conveniently be considered together. On August 3rd Razorbills, Puffins and Guillemots were very common in places off N. Ireland, Guillemots less so than the other two species. A Black Guillemot was seen off Rathlin Island. No Auks were noted after leaving Inishtrabull, except one (sp ?) some 6 miles outside the continental edge, in the evening. Off Newfoundland, a few Puffins, Guillemots and Black Guillemots were seen, all in soundings, on August 8th. In September Auks were noted only close to land, off Newfoundland and in the Irish Channel. No Little Auks (*Alle a. alle*) were seen on either transect.

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NESTING HABITS OF THE WILLOW-TIT IN CUMBERLAND

BY

TOM L. JOHNSTON

DURING the last few years I have spent a considerable time in observing the Willow-Tit (*Parus a. kleinschmidtii*) in the north and north-west of Cumberland, and have noted a gradual increase in numbers together with an extended breeding range. Most of the woods in this area are suitable for both feeding and nesting.

Damp birch woods in which there are plenty of storm-broken and decayed branches and stumps essential to boring are the most favoured in the breeding season. The preference shown by the Willow-Tit for damp and even swampy ground is explained by the fact that the trees, especially birch, growing in such situations, are most affected by decay.

Mr. Reginald Ware, in his notes (*antea*, p. 242), says that he has sometimes wondered whether the scarcity of nesting-sites has any connexion with the comparative rarity of the bird. In this district the bird might appear to be rare during the breeding-season through leaving winter haunts and becoming localized in woods of the type described above.

I have a good instance of a winter haunt becoming a nesting haunt in a birch wood situated on dry ground. It had been for a number of years to my knowledge a favourite winter haunt, but the birds were neither seen nor heard in the breeding-season. There were no stumps or branches sufficiently decayed and I found trial borings which had been given up on solid wood being reached. During the winter of 1934-35, however, I found several stumps advanced in decay, and on April 21st, 1935, found a nesting-site newly excavated in a birch stump two feet high and three inches in diameter. The following week a second nest was located in the same wood.

On the many occasions that I have observed the birds engaged in boring, the chippings were almost invariably dropped to the ground below the entrance. Exceptions were at the end of a spell of work when the last chips were carried a short distance as the bird left for a rest.

A typical nesting-site in the bole of a Rowan tree (*Pyrus aucuparis*) broken by the storms of winter, had a boring descending perpendicularly from the entrance, but this was abandoned before being completed as the birds encountered hard wood. A second boring, begun at a lower level, was

completed, and the nesting cavity excavated right to the inner surface of the bark. It measured seven inches in depth. The site was rendered conspicuous, even at some distance, by a quantity of rather hard whitish chippings, which were held in a maze of spider webs covering the stump. Furthermore, the ground immediately below the stump was littered to such an extent that, for the safety of the nest, I had either to brush them away or cover them with fallen leaves. The same site had been used for years by Tree-Creepers (*Certhia f. britannica*) and a pair of these birds were in occupation at the same time as the Willow-Tits.

When excavations are made in birch which is in an early stage of decay, the littered light-coloured chippings are very conspicuous, but at a later stage, when the wood is in the last state of decay and blackish-brown in colour, the chippings can hardly be detected on the ground. The height above ground of the nesting-hole varies according to the choice there is of decayed wood. I have seen them from six inches in a stump to fifteen feet in a branch, but the latter is exceptional.

While the entrance is usually to the side, I have on three occasions found the entrance to the sky, and the boring descending perpendicularly. Two such excavations were in stumps and one in a branch. So far as my observations go the nesting chambers are used only once, but the birds often return to the same stump the following year, to excavate anew, usually at a lower level.

The habit here of Great Tit (*Parus m. newtoni*) and Blue Tit (*P. c. obscurus*), taking over old nesting chambers in good condition, has developed into a menace, as in recent years I have found these two ousting the rightful owners from newly-completed excavations. This happens even after the Willow-Tits have constructed the nest. In 1935 four completed nests that I knew were taken possession of by two Great Tits and two Blue Tits, and in every one the usurpers had full clutches of eggs. This parasitic habit is most pronounced in birds in deciduous woods where the usurping species are generally more plentiful than in coniferous woods. Willow-Tits frequenting birch patches among conifers are seldom molested as, taking the wood as a whole and without considering the food question, there is not a great number of normal nesting-sites to attract the others. Has this parasitic habit been observed in other breeding localities?

After nest building has commenced the female roosts at night in the nesting cavity, while the male roosts in a small

hole in some stump close at hand, generally a trial boring. This he occupies during the incubation period and until the young are fledged. One particular male under observation was very annoyed when disturbed, but showed no signs of fear on going back to roost while I stood close by.

All the nests that I have examined were composed of rabbit fur with small quantities of vegetable down and narrow strips of bark fibre, and in some cases there were small feathers intermixed. None had moss in their composition. Nest building is sometimes continued after eggs have been laid, for Mr. W. J. M. Gubbins and I watched a male carrying nesting material to a nest in which the female was sitting on nine eggs.

I have not recognized the Marsh-Tit (*Parus p. dresseri*) in the district occupied by the Willow-Tit, but Mr. E. Blezard has a nesting record for the south side of Carlisle, and two nests were found recently to the south-west of Carlisle.

REDSHANK NESTING AT TRING RESERVOIRS.

AN EFFECT OF THE DROUGHT.

BY

CHARLES OLDHAM.

IN ordinary circumstances the water level of the large canal reservoirs near Tring is at its highest in spring, and the abrupt transition from deep water or dense reed-beds to dry, chalky fields inhibits the nesting of Snipes and Redshanks (*Tringa totanus*). But the circumstances in 1933, 1934 and 1935 were extraordinary, and the nesting routine of several species of birds was affected profoundly. Deficient rainfall resulted in a material shrinkage of the water and the exposure of large areas of fertile mud in 1933. In the following year the mud-banks were mostly covered by a jungle—breast-high in places—of *Chenopodium rubrum* and other coarse annual herbs, whilst the continuous decline in the rainfall resulted in further expanses of bare mud. So great was the departure from the normal, that Grebes, Coots and Diving Ducks failed to nest (*antea*, XXVIII., pp. 250-256). Conditions changed again in 1935. The dense lush jungle of vegetation that had been such a feature of the place in 1934 was succeeded by a growth of more lowly plants: water had to be brought from a distance and pumped into the reservoirs to meet the imperative needs of the Canal Company; and water had, of course, to be pumped from the reservoirs into the canal. The irregular and intermittent influx and efflux, whilst it seriously incommoded the Great Crested Grebes and Coots, by sometimes stranding and sometimes flooding their nests, supplied Lapwings and Redshanks with convenient swampy nesting grounds in the low-growing herbage. A few Redshanks—odd birds or little parties of three or four—were to be seen feeding with other passage waders on the wet mud in the spring and early summer of 1934; but, so far as is known, none nested. In the spring of 1935 a noisy pair was noticed at the Wilstone, and another at the Startop's End, Reservoir. On May 17th my wife and I sat down to watch the pair at Wilstone, and presently detected two downy chicks with the old birds—there may have been more, but they were difficult to see in the herbage. Four days later the pair at Startop's End was seen to be tending two downy chicks; here again it was difficult to see how many young there really were, for the birds were feeding on ground covered by *Stellaria aquatica*, which was high enough to hide the chicks. It is possible that more than one pair nested here, for on May 29th there were

at least eight full-grown birds about the Startop's End and Little Tring Reservoirs ; but, be that as it may, a pair at Startop's End, on July 22nd, had two big chicks ; the late date suggesting that an earlier attempt to nest had been frustrated.

The nearest known breeding place of the Redshank to Tring is the low-lying ground in the Vale of Aylesbury, some miles away, and I know of only one positive instance of it nesting at the Reservoirs prior to 1935. On June 7th, 1909, when the water was very low after a long dry spell, I saw a pair with two small chicks at Wilstone Reservoir. It is possible that another pair nested—they were demonstrative enough—but I failed to find any young.

Reference must, however, be made to presumptive nesting at Wilstone Reservoir in 1922. The water was then very low after the dry summers of 1920 and 1921 ; the jungles of *Chenopodium* and other rank herbage of 1921 had given place to vegetation of a lowlier growth ; indeed the conditions were very similar to those subsequently experienced in 1935, and eminently suitable for Redshanks to nest. As a matter of fact a pair of noisy birds were about the place throughout the first half of May ; and, although no nest was found, there is reason to think that one was destroyed by the rapid rise of the water in the middle of the month.

When the conditions were favourable in 1909 Redshanks nested at the Reservoirs as they did presumably in similar favourable circumstances in 1922. In 1935 the favourable conditions recurred, and then, but not until then, Redshanks nested again. This, at any rate, is how I interpret the facts ; and it seems just as likely that, had similar favourable conditions obtained in the interim they would have nested then, as it is unlikely that any will nest in 1936, for the Reservoirs are now full to the brim once more. What one would like to know is whence the birds came and why, granted that the conditions were favourable, they nested at the Reservoirs in preference to some other place. Four possible, but not mutually exclusive, explanations occur to me, and there may well be others.

(a) The birds that nested in 1909, 1922 and 1935 may have been hatched in 1908, 1921 or 1934, as the case may be, and have been compelled by over-crowding to colonize fresh ground, which, in the unusual circumstances, they found at the Reservoirs.

(b) The long-continued drought, which gave rise to favourable conditions at the Reservoirs, may well have had the

opposite effect elsewhere, drying up marshes and swamps and driving the birds—not necessarily the young ones only—to seek other nesting-places.

(c) Birds on the spring passage in 1909, 1922 and 1935, finding suitable conditions and unoccupied territory, may have stopped and nested at the Reservoirs instead of passing on to their accustomed nesting-grounds.

(d) There are many well-attested cases of birds, of different orders, finding new mates when bereft of their own, even in the height of the breeding-season and in districts where their species is sparsely distributed. Such a state of things postulates a reserve from which the new mates are drawn, and, it may be assumed, an available reserve of colonists for new terrain, e.g. the Reservoirs, so soon as that new terrain offers suitable conditions for nesting.

NOTES

BULLFINCHES IN A FLOCK IN WORCESTERSHIRE.

IN view of Mrs. Rait Kerr's note on Bullfinches in flock (*antea*, p. 357), I may mention that between November 16th and 25th, 1930, I saw nine males and one female together on several occasions at Sheriffs Lench, Worcestershire.

A. J. HARTHAN.

BULLFINCHES IN A FLOCK, AND HAWFINCH IN GLAMORGAN.

WE were interested to see Mrs. H. Rait Kerr's note (*antea*, p. 357) on the flock of Bullfinches (*Pyrrhula p. pileata*) at Berkhamsted, for on February 9th, 1936, we saw a flock of over sixteen composed of males and females in nearly equal numbers, feeding together on fairly open ground beneath some birches in a park on the outskirts of Cardiff. We remarked at the time that we had never before seen such a flock although a friend in Monmouthshire had observed as many as ten to a dozen together in his garden one February, and his gardener had shot over thirty in less than a fortnight, a fact we have placed on record in our book *Birds in Britain To-day*.

Less than fifty yards away from the flock of Bullfinches a solitary male Hawfinch (*Coccothraustes c. coccothraustes*) was busy beneath a large hawthorn picking up and cracking the stones of fallen berries. This species is uncommon and very local in the county.

GEOFFREY C. S. INGRAM.

H. MORREY SALMON.

CROSSBILLS BREEDING IN ENGLAND.

KENT.—The Rev. J. R. Hale informs us that on March 31st, 1936, in the neighbourhood of Maidstone, he found five pairs, two of which were certainly nesting.

SURREY.—We have news of definite breeding and some nests containing eggs by the second week in February.

SUSSEX.—Breeding has been definitely noted but not in any great numbers.

HAMPSHIRE.—Young were out of the nest by April 10th and 12th in several cases in the Bournemouth district where Mr. Jourdain saw broods.

WILTSHIRE.—Mr. C. M. R. Pitman informs us that he found on April 12th in the south of Wiltshire, two nests of Crossbills,

and he states that judging by the agitation of the parent birds, he believes that both nests had young ones, though he did not actually investigate them. Other pairs, probably breeding, were seen.



BROODING CROSSBILL, NORFOLK, 1936.
(Photographed by G. K. Yeates.)

NORFOLK AND SUFFOLK.—In the Breckland area where Crossbills have bred each year since 1910, they had become scarce in 1934 and 1935; but several correspondents have informed us that the number breeding this year has increased considerably, no doubt as a result of the immigration. Mr. G. K. Yeates kindly allows us to reproduce the accompanying photograph of one out of a number of nests he examined at the end of March in this district.

It should be noted that as in the case of other irruptions there are still flocks or parties of non-breeding birds in many districts.

GREAT GREY SHRIKE IN SUFFOLK.—Mr. W. A. Cadman informs us that he watched a Great Grey Shrike (*Lanius excubitor*) near Brandon on March 19th, 1936; this was 3 or 4 miles from where he saw one on March 26th, 1935 (*antea*, p. 32). The bird dropped an object which proved to be the half-eaten head and neck of a hen Linnet.

WAXWING IN WARWICKSHIRE.—Mr. H. G. Alexander informs us that a single Waxwing (*Bombycilla garrulus*) was observed feeding on hawthorn berries at Northfield, Birmingham, on March 6th, 1936, by Mr. Andrew Haynes. It remained until March 21st, and was watched almost daily by a number of observers. It very frequently visited a dirty pond or a stream to drink.

REVIEWS.

The Birds of the Firth of Clyde, including Ayrshire, Renfrewshire, Buteshire, Dumbartonshire and South Argyllshire. By J. M. McWilliam. pp. 164. 10 Plates and Map. Witherby, London. 1936. 12s. 6d.

THE last few years have seen rapid changes in the work of recording and mapping the Scottish avifauna. Out of the thirteen faunal areas as originally planned by Harvie-Brown, eleven have been completely monographed. Of the remaining two, Clyde and Solway, the former is covered by the present work, with the exception of Lanark; while in Solway only Kirkcudbright and Wigtown remain unworked on modern lines.

The revolt against the "tyranny of the waterpartings" has now come to a head, and in the present work the author has definitely adopted the system of adherence to county boundaries, which though of course artificial, has many practical advantages over Harvie-Brown's plan. It is to be hoped that the gaps will soon be filled; Kirkcudbright in particular has no past avian history, and Gray and Anderson's little pamphlet on Ayr and Wigtown dates back to 1869.

Mr. McWilliam's book is a compact little volume, and bears marks of rigid compression. In order to produce the work at a low price he has refrained from repeating much of the matter already published in the *Birds of the Island of Bute* (1927) and *Birds of Ayrshire* (1929). One or two features in the book are of considerable interest. Two of the plates of scenery are reproductions of photographs taken by the infra-red method and though they show more than the eye can envisage, yet are valuable as accurate records of orographical features. The third view is taken from the air and is very effective.

The number of forms recorded is 251, though this includes those which have been "square-bracketed" by the author, as not yet having been substantiated by actual specimens. The Cirl-Bunting which has been reported several times from the Clyde area and once recorded as breeding, is thus bracketed and it must be admitted that on geographical grounds, until a specimen has actually been obtained, the procedure is justified.

The compilation has been carefully done on the whole, though here and there a few inaccuracies may be detected. In the article on the Great Crested Grebe it is stated that the first nest to be reported for Scotland was on Harelaw Dam, Renfrewshire, in 1889. The exact locality was not stated in the original record, but the nest was actually found on the Long Loch, on June 7th. Another clutch (not recorded) had been taken a few days earlier on another loch in the same district.

In the account of the breeding of the Storm-Petrel on Ailsa, Gray's note in 1863 is quoted and a reference is given to a photograph taken by Kearton of an old nesting-site, which was published in 1895. This cannot be taken as evidence of actual breeding, but in 1887 a young bird was caught by the tacksman's dog and was put into spirits and sent across to the mainland. It was probably the site of this nest which was photographed by Kearton some years later. The *Birds of Ayrshire* was published in 1929 and there seems to be a lack of field observations in the period between this date and the present time. On page 99 a few pairs of Cormorants "are said to nest" on the cliffs of South Ayrshire. A pair or two still breed there or, at any rate, did so in 1935, though, of course, the Shag is the dominant species. On the other hand, on page 28, we read: "A very few pairs of Choughs still nest on the cliffs in South Ayrshire, where I have seen them". Undoubtedly they did nest there up to about 1925, but have not done so for a good many years past and are now absent from the South Ayrshire coast. One pair of Buzzards is also said still to breed on the sea-cliffs of South Ayrshire, but it is extremely doubtful whether they are to be found there now, while the Peregrines are ruthlessly destroyed, although they seek their prey along the coast. We think the number of breeding pairs of Black Guillemot is over-estimated.

There is a useful Bibliography at the end of the book and we need hardly say that the work has been produced in excellent style, while the low price renders it accessible to all. Mr. McWilliam has rendered a great service to British ornithology by the publication of a work which has largely filled a gap and for this we are grateful. F. C. R. JOURDAIN.

Birds of the Green Belt. By R. M. Lockley. (Wetherby). Illustrated. 5s. This book is based upon an excellent idea, well carried out. There are various books upon the birds of London and separate monographs on the neighbouring counties, but the enormous spread of the built-up area during recent years and the greater distances which it is necessary to travel in order to escape from streets have made the divisions used in county histories largely irrelevant to bird-watchers in Greater London. Mr. Lockley defines his green belt as extending between about a 13-mile and a 25-mile radius from St. Paul's, but he oversteps these limits fairly freely both ways. What would Gilbert White have said about including Selborne as a parish on the fringe of London?

An ornithologist's first reaction on hearing of the publication of a popular work on birds round London complete with a guide showing how to get to the various haunts by rail, coach or bus, may well be one of alarm, but Mr. Lockley has been alive to the dangers of giving away the localities of scarce forms and exposing them to disturbance. He has ranged the country round London in a series of types, and given much useful information about the species likely to be met with and how to recognize them. Although necessarily popular and elementary the book is so well done that there can be few ornithologists who will not find it a useful standby in deciding where to spend free days or afternoons close to London.

If the book should run into a fresh edition as it deserves, a few criticisms may receive attention. The account of the Willow-Tit is unsatisfactory : it does not, for instance, mention the light wing-patch, wrongly describes the song as being similar to the Marsh-Tit's and as consisting of one or two notes, and misses the point of the call, here rendered "*Chay*," by simply describing it as deep, and by omitting to mention that it is a spring call, and that the Willow-Tit has an equally characteristic contact note used at all seasons. The Starlings have long since been ejected from the roost mentioned on the British Museum, and those who have studied heronries in the London area would like to know more about that mentioned on secondhand evidence as existing in cedars at Sion House. Would it also not be as well to give fuller details about the London Natural History Society, so as to enable those interested to get into direct touch with a body which is doing admirable work in bringing together bird-watchers in Greater London?

E. M. N.

LETTERS.

"TERRITORY" RECORDED FOR NIGHTINGALE IN SEVENTEENTH CENTURY.

To the Editors of BRITISH BIRDS.

SIRS,—In *British Birds*, Vol. XXVII., there were published several letters about early instances of the recognition of Territory, and Dr. N. F. Ticehurst pointed out that the possession of territories by Mute Swans was recorded as long ago as 1632 (p. 308). The fact that the Nightingale occupied a territory was also recorded in the seventeenth century.

In Ray's *Ornithology of Francis Willughby*, 1678, (p. 222), we find :—

"It is proper to this Bird at his first coming (saith Olinia) to occupy or seize upon one place as its Freehold, into which it will not admit any other Nightingale but its mate".

This is one of the passages added by Ray to the English edition and does not occur in the Latin edition of 1676. The statement by Olinia, of which it is a translation, occurs on page 1 of his *Uccelliera*, first published in 1622, and reads :—

"Nel suo arrivo hà per proprio il pigliarsi un luogo, come sua franchigia, nel quale non ammette altri Russignuoli, che la propria femmina, e in quello d'ordinario canta".

It will be seen that Ray omitted this last statement that it ordinarily sings in its freehold.

W. B. ALEXANDER.

OXFORD.

WOODLAND BIRD ENQUIRY

To the Editors of BRITISH BIRDS.

SIRS,—There has been an encouraging response from the appeal for observers in the Woodland Bird Enquiry organized through the British Trust for Ornithology. But while certain types of wood seem to be adequately covered, of others we have scarcely enough examples. I should be glad to hear from any other observers who might be interested in the enquiry, and particularly if they can undertake a wood or woods in the following categories :

1. Birch. 2. Willow. 3. Woods of any type devoid of bushes, shrubs and other secondary growth.

DAVID LACK.

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INDEX.

NOTE.—The nomenclature followed in this volume is in accordance with the "Systematic List" printed at the end of the Volume II. of *A Practical Handbook of British Birds* and reprinted in *A Check-List of British Birds*, and the additions and alterations appearing on pages 101-2 of Volume XXII., pages 24 and 25 of Volume XXIV., pages 8 and 16 of Volume XXVI., pages 2 and 3 of Volume XXVII., and pages 90-96 and 186 of Volume XXVIII. of *British Birds*.

- ge, *Uria a.*, see Guillemot, Northern.
 ta, *Anas*, see Pintail.
 a, *Egretta*, see Heron, Great White.
 —, *Tyto a.*, see Owl, Barn-
 ionis, *Uria a.*, see Guillemot, Southern.
 EXANDER, H. G., A Chart of Bird Song, 190; Letters on a Chart of Bird Song, 296; The Movements of Sea-birds, 298; on Sounds produced by Little Owl, 361; Note on Sooty Tern in Kent, 187; Notes from Bittell Reservoirs, Worcestershire, 352.
 —, W. B., Letter on "Territory" recorded for Nightingale in seventeenth century, 388.
 xandrinus, *Charadrius a.*, see Plover, Kentish.
 glorum, *Regulus r.*, see Wren, Golden-crested.
 ier, *Anser*, see Goose, Grey Lag-
 vorus, *Pernis*, see Buzzard, Honey-
 icarius, *Charadrius a.*, see Plover, Golden.
 is, *Apus*, see Swift.
 orea, *Lullula*, see Lark, Wood-
 ica, *Fratereula*, see Puffin.
 entatus, *Larus a.*, see Gull, Herring-
 otchis, *Phalacrocorax a.*, see Shag.
 MITAGE, JOHN, A Black Wheat-ear's Nest (Plate 4), 94; Descriptions of Nestlings of some Rare British Birds, 108.
 MSTRONG, E. A., Letter on Mythology of Woodpecker, 35.
 NOLD, E. C., Sykes's Wagtail as a British Breeding Bird, 199.
 arquata, *Numenius a.*, see Curlew, Common.
 ASHBY, K. R., Note on Black Redstart in Essex, 28.
 Atlantic, North, Birds seen in, August and September, 1935, 366.
 atra, *Fulica*, see Coot.
 atricapilla, *Sylvia a.*, see Blackcap.
 BADDELEY, THOS., Note on Bewick's Swans in Lancashire, 251.
 BAILLIE, RUTH, Note on Blackbird eating flowers, 178.
 BARCLAY, Miss M., Note on Stock-Doves alighting on water, 217.
 BARON, S., Note on Robins changing mates between broods, 178.
 bassana, *Sula*, see Gannet.
 beema, *Motacilla flava*, see Wagtail, Sykes's.
 bernicla, *Branta*, see Goose, Brent.
 BERRY, J., Note on Great White Heron in Wiltshire, 249.
 bewickii, *Cygnus*, see Swan, Bewick's.
 BIBLE, E. H. T., Note on Gadwall in Merionethshire, 290.
 BIRD, G. R., Nesting of the Hawfinch, 2.
 Bird-Song, A Chart of, 190, 258, 259, 294, 296, 337, 361.
 Bittern in Ireland, 129.
 Blackbird, Recovery of Marked, 54, 280; Nest with eight eggs, 81, 121; Movements of ringed, to and from abroad, 136; Eating flowers, 178, 243.
 Blackcap, Irregular laying of, 58; Wintering in Somerset, 293; in winter in Herefordshire and Sussex, 330.
 BLEZARD, ERNEST, Letter on the Birds of Lakeland, 155.

- BOYD, A. W., Report on The Swallow inquiry, 1934, 3; Notes on Long-tailed Duck inland in Cheshire, 85; Snow-Buntings in Cheshire Plain, 286; Notes from Altrincham Sewage Farm, Cheshire, 1935, 349; Notes from Staffordshire Reservoirs, 1935, 350.
- brachyrhynchus*, *Anser*, see Goose, Pink-footed.
- Brambling, Recovery of marked, 52; Movements of ringed to and from abroad, 135; in Inner London, 357.
- BRAMWELL, W. H., Note on unusual nesting site of Red-backed Shrike, 243.
- britannica*, *Tringa totanus*, see Red-shank, British.
- britannicus*, *Lyrurus t.*, see Grouse, Black.
- "British Birds" Marking Scheme, Progress for 1935, 338.
- British Trust for Ornithology, Publications of:—Report on the Swallow Enquiry, 1934, 3; The Index of Heron Population, 1935, 98; A Chart of Bird-Song, 190; Viscount Grey Memorial Appeal, 284; Programme for 1936, 284; Report of an Investigation of The Food of captive Little Owls, 302.
- Bullfinch, Recovery of marked, 52, 278; Flock of, 357, 384.
- Bunting, Ortolan, in Caithness, 87; in Shetland, 173; at Isle of May, 329.
- , Snow-, in Inner London, 239, 345; in Cheshire Plain, 239, 286; Food of, 359.
- , Yellow, Recovery of marked, 52.
- BURKITT, J. P., Young Rooks, Their Survival and Habits, 334.
- BURLINSON, F. J., see SWEETLOVE, J. A.
- Bustard, Eastern Little, in Aberdeenshire, 32; in Hampshire, 252.
- buteo*, *Buteo b.*, see Buzzard, Common.
- BUTLIN, Miss S. M., Note on Black Redstarts in Gloucestershire, 110.
- Buzzard, Common, in Surrey, 83, 357; in Ireland, 129.
- , Honey-, Reported breeding in New Forest, 124.
- BYNE, Lt.-Col. R. M., Note on Black-tailed Godwits in South Devon, 290.
- BYWATER, Rev. PERCIVAL F., Note on "Incubation" by both cock and hen Common Partridge, 62.
- cabaret*, *Carduelis f.*, see Redpoll, Lesser.
- CADMAN, W. A., Note on Fulmar Petrels probably breeding in Pembrokeshire, 117.
- Caithness, Scarce Birds in, 87.
- CAMPBELL, Dr. JAMES W., Habits of the Rook, some Notes on an Essex Rookery, 306; Notes on Breeding Places of Fulmar Petrels in Sutherlandshire, 150; Shore Birds and Molluscs, 183; Continental Jay in Essex, 324.
- cannabina*, *Carduelis c.*, see Linnet.
- canorus*, *Cuculus c.*, see Cuckoo.
- cantillans*, *Sylvia c.*, see Warbler, Subalpine.
- canutus*, *Calidris c.*, see Knot.
- carbo*, *Phalacrocorax c.*, see Cormorant.
- CARROLL, C. J., Note on Land-Rail laying twice in twenty-four hours, 152.
- CASH, JAMES J., Note on Snow-Buntings in Cheshire Plain, 239; Letter on A Chart of Bird-Song, 294.
- Chaffinch, Recovery of marked, 52, 278; Movements of ringed from abroad, 135; Population Problems and Territorial Habits, 158.
- chloris*, *Chloris ch.*, see Greenfinch.
- chloropus*, *Gallinula ch.*, see Moor-Hen.
- Chough, in Orkney, 292; in Dorset, 292; in Sussex, 292.
- chrysaetus*, *Aquila ch.*, see Eagle, Golden.
- cinerea*, *Alauda arvensis*, see Lark, Eastern Sky-.
- , *Ardea c.*, see Heron, Common.
- , *Motacilla c.*, see Wagtail, Grey.

- citrinella*, *Emberiza*, see Bunting, Yellow.
- CLANCEY, PHILIP A., Notes on Blue Tit nesting in Kingfishers' Nesting Hole, 58; Pied Wagtails depriving Swallows of their prey, 176; Courting Habits of the Kingfisher, 326.
- clangula*, *Bucephala c.*, see Golden-eye.
- CLARKE, W. J., Status of Breeding Fulmar Petrels in Yorkshire, 151.
- clypeata*, *Spatula*, see Shoveler.
- coccothraustes*, *Coccothraustes c.*, see Hawfinch.
- cœlebs*, *Fringilla c.*, see Chaffinch.
- COHEN, EDWIN, Note on Exhausted Leach's Petrel revived with cod-liver oil, 216.
- collurio*, *Lanius c.*, see Shrike, Red-backed.
- collybita*, *Phylloscopus c.*, see Chiff-chaff.
- columbarius*, *Falco*, see Merlin.
- comminutus*, *Dryobates m.*, see Woodpecker, Lesser Spotted.
- communis*, *Sylvia*, see Whitethroat.
- CONGREVE, Major W. M., Note on Probable Breeding of Nightingales in Denbighshire, 59.
- COOMBES, Dr. R. A. H., Note on Iceland Redshank in Lancashire, 86.
- Coot, Field Notes on, 38; Winter movements, 38; Diving habits, 38; Recovery of marked, 77, 320; as a Migrant, 118.
- corax*, *Corvus c.*, see Raven.
- Cormorant, Recovery of marked, 73, 310; Movements of ringed, to abroad, 139.
- , Southern, in Dorset, Sussex, Suffolk and Kent, 358.
- cornix*, *Corvus c.*, see Crow, Hooded.
- , — \times *corone*, *Corvus*, see Crow, Hooded.
- corone*, *Corvus*, see Crow, Carrion.
- coturnix*, *Coturnix*, see Quail.
- crecca*, *Anas*, see Teal.
- crex*, *Crex*, see Rail, Land-.
- cristatus*, *Podiceps c.*, see Grebe, Great Crested.
- CROSS, DONALD, Note on Great Skua off Tenerife, 30.
- Crossbill, Immigration of, 87, 112, 148, 175, 214, 252, 292; Breeding in Surrey, 359; Breeding in Kent, Surrey, Sussex, Hampshire, Wiltshire, Norfolk and Suffolk, 384.
- Crow, Carrion-, Recovery of marked, 50; in Ireland, 127; Inter-breeding with Hooded Crow in Ireland, 238.
- , Hooded, Inter-breeding with Carrion-Crow in Ireland, 238; in Surrey, 329; at Altrincham Sewage Farm, Cheshire, 349.
- Cuckoo, Late in Argyll, 293.
- Curlew, Recovery of marked, 76, 316; Movements of ringed from abroad, 141.
- , Stone-, Movements of ringed to abroad, 141; Recovery of marked, 314.
- curruca*, *Sylvia*, see Whitethroat, Lesser.
- curvirostra*, *Loxia c.*, see Crossbill.
- cyaneus*, *Circus*, see Harrier, Hen-.
- cygnus*, *Cygnus*, see Swan, Whooper.
- dartfordiensis*, *Sylvia u.*, see Warbler, Dartford.
- DAVIS, H. H., Note on Ruff and Little Stint in Gloucestershire, 252.
- , K. J. ACTON, Note on Eastern Little Bustard in Hampshire, 252.
- Decoy, Orielton, Past and Present, 167.
- DELAMAIN, JACQUES, Letter on Movements of Jays in France, 297.
- DES FORGES, G., see PAULSON, C. W. GEOFFREY.
- Dipper, Recovery of marked, 54.
- discors*, *Anas*, see Teal, American Blue-winged.
- Diver, Red-throated, in Middlesex, 29; Mortality amongst young, 181.
- DODD, Dr. P. VERNON, Note on Three Long-tailed Tits at one nest, 80.
- domesticus*, *Passer d.*, see Sparrow, House-.
- Dorset, Notes from, 324.
- Dove, Stock-, Alighting on Water, 217; Recovery of marked, 314.

- Dove, Turtle-, in Ireland, 131; Movements of ringed to abroad, 140.
- Duck, Long-tailed, inland in Cheshire, 85.
- , Scaup-, Movements of ringed from abroad, 138; in Surrey, 330; in Worcestershire, 353.
- , Sheld-, Recovery of marked, 73; Early Nesting of, in Kent and Sussex, 85.
- , —, Ruddy, at Altrincham Sewage Farm, Cheshire, 88, 349.
- , Tufted, Recovery of marked, 73, 310; Movements of ringed, to and from abroad, 138.
- , see also under Gadwall, Goldeneye, Mallard, Pintail, Pochard, Scoter, Shoveler, Teal and Wigeon.
- Ducks, Unusual numbers of at Barrow Gurney Reservoirs, 354.
- Eagle, Golden, Mating during Incubation, 59; in Ireland, 129.
- eburnea*, *Pagophila*, see Gull, Ivory.
- EDWARDS, V. C. WYNNE, LOCKLEY, R. M., and SALMON, H. MORREY, The Distribution and Numbers of Breeding Gannets, 262.
- Eider, Recovery of marked, 73.
- ELLIOTT, J. S., Note on Wood-Pigeons and Green Woodpeckers feeding on cherries, 182.
- EMMET, REV. HOWARD J., Note on Swallow Clutches and Broods, 149.
- ericetorum*, *Turdus e.*, see Thrush, British Song-.
- erythropus*, *Tringa*, see Redshank, Spotted.
- eversmanni*, *Phylloscopus t.*, see Warbler, Northern Willow-.
- excubitor*, *Lanius*, see Shrike, Great Grey.
- færoeensis*, *Capella g.*, see Snipe, Færoe.
- Falcon, Peregrine, in Surrey, 88.
- Feeding, Observations on Times of, 45.
- ferina*, *Nyroca*, see Pochard, Common.
- ferruginea*, *Casarca*, see Duck, Ruddy Sheld-.
- FINCH, F. R., Note on Red-throated Diver in Middlesex, 29.
- flammeus*, *Asio f.*, see Owl, Short-eared.
- flava*, *Eremophila a.*, see Lark, Shore-.
- flavipes*, *Tringa*, see Yellowshank.
- flavirostris*, *Carduelis f.*, see Twite.
- Flycatcher, Pied, in Shetland, 173.
- , Spotted, in Shetland, 173; Attempting to build on occupied Wren's nest, 153; Note on breeding of a pair of, 177; Late Stay in Essex, 330.
- FORREST, H. E., Letter on Scarcity of Migrants, 89; Notes on Song-Thrush laying nine eggs, 115; Lesser Spotted Woodpecker in Anglesey, 179.
- Forth, Scarce Birds in, 119.
- frugilegus*, *Corvus f.*, see Rook.
- fulicarius*, *Phalaropus*, see Phalarope, Grey.
- fuligula*, *Nyroca*, see Duck, Tufted.
- Fulmar, see Petrel, Fulmar.
- fusca*, *Oidemia f.*, see Scoter, Velvet-.
- fuscata*, *Sterna*, see Tern, Sooty.
- fuscus*, *Larus f.*, see Gull, Scandinavian Lesser Black-backed.
- Gadwall, Recovery of marked, 73; Movements of ringed from abroad, 137; in Pembrokeshire, 167, 171; in Merionethshire, 290; in Worcestershire, 353.
- galactotes*, *Agrobates g.*, see Warbler, Rufous.
- gallinago*, *Capella g.*, see Snipe, Common.
- GANNET, Recovery of marked, 74, Correction to, 153; 312; Movements of ringed to abroad, 139, 140; Movements of, off Cornwall, 203; off Isle of Skye, 260; Distribution and Numbers of Breeding, 262.
- Garganey, in Derbyshire, 153; in Pembrokeshire, 168, 171; in Monmouthshire, 251.
- garrulus*, *Bombycilla*, see Waxwing.
- , *Coracias g.*, see Roller.
- gibraltariensis*, *Phænicurus o.*, see Redstart, Black.
- GILBERT, H. A., see MACKWORTH-PRAED, C. W.

- glacialis*, *Fulmarus g.*, see Petrel, Fulmar.
- glandarius*, *Garrulus g.*, see Jay, Continental.
- GLEGG, WILLIAM E., Notes on Hobby eating Swallow or Martin in air, 179; Arctic and other Terns in Middlesex, 186; Great Spotted Woodpeckers in Shetland, 215; Black-headed Gulls feeding on Beetles, 219; Review of *The Birds of Midlothian*, 64.
- Godwit, Bar-tailed, in Shetland, 174.
- , Black-tailed, in Merionethshire, 120; in Ireland, 131; in Shetland, 174; in Sussex, 255; in Dorset, 255, 326; in Montgomery, 255; in South Devon, 290; in Hampshire, 326; in Devon, 330; in Cornwall, 330; inland in Cheshire, 350; in Staffordshire, 352.
- Goldeneye, in Kensington Gardens, 60.
- GOOCH, G. B., Notes on Kestrel eating Prey in air, 246; A Great Tit Triangle, 78.
- Goose, Brent, in Ireland, 130; in Worcestershire, 353.
- , —, Dark-breasted, separating from Pale-breasted Brent Geese, 289.
- , Grey Lag-, in Kent, 84, 116; Movements of ringed from abroad, 137.
- , Pink-footed, weight of, 36.
- GORDON, SETON, Note on Golden Eagle Mating during Incubation, 59; Letter on Sea-Bird Movements, 260.
- grabæ*, *Fratercula a.*, see Puffin.
- graellsii*, *Larus f.*, see Gull, British Lesser Black-backed.
- Grebe, Black-necked, in Surrey in April, 117; in Sussex, 330; in June in North-east Scotland, 360.
- , Great Crested, at Elstree Reservoir, 28; Behaviour of, on ice, 290.
- , Red-necked, in Kent, 328.
- Greenfinch, Recovery of marked, 52, 278; Repeated return to trap, 361.
- Greenshank, in Hampshire, 325.
- GREY, VISCOUNT, Memorial Appeal, 284.
- griseigena*, *Podiceps g.*, see Grebe, Red-necked.
- griseus*, *Puffinus*, see Shearwater, Sooty.
- Grouse, Black, Former abundance in Sussex, 31.
- Guillemot, Movement of ringed to abroad, 144; Movements of, off Cornwall, 203.
- , Southern, Recovery of marked, 77, 320.
- , Northern, Recovery of marked, 320.
- gularis*, *Cinclus c.*, see Dipper.
- Gull, Black-headed, Recovery of marked, 76; Movements of ringed, to and from abroad, 142; Feeding on Beetles, 219; Recovery of marked, 318.
- , Common, Movements of ringed from abroad, 143.
- , Great Black-backed, Recovery of marked, 77, 320; Movements of ringed to abroad, 144.
- , Herring-, Recovery of marked, 77, 319; Movements of ringed to abroad, 143.
- , Iceland, in Yorkshire, 63; in Forth, 120.
- , Ivory-, in Elgin, 89.
- , Lesser Black-backed, Recovery of marked, 77, 319; Movements of ringed to abroad, 143.
- , Sabine's, in Ireland, 131.
- , Scandinavian Lesser Black-backed in London, 188; in Pembrokeshire, 235; in Essex, 247.
- guttata*, *Tyto a.*, see Owl, Dark-breasted Barn-.
- haliæetus*, *Pandion*, see Osprey.
- Hampshire, Notes from, 324.
- HARDY, ERIC, Note on Bird Concentration in a small area in Lancashire, 25.
- Harrier, Hen-, in Sussex and Kent, 83; in Essex, 247; in Anglesey, 360.
- , Montagu's, Number of, breeding in Britain in 1935, 247; Examination of Pellets of 248; Recovery of marked, 282.

- HARRISON, Dr. JAMES M., Note on Continental Jays in Kent, 27.
- HARTHAN, A. J., Notes on Black Redstart in Worcestershire, 244; Bullfinches in a flock in Worcestershire, 384.
- HARTLEY, P. H. TRAHAIR, A Contribution to the Study of Sea-Bird Movements, 203.
- Hawfinch, Nesting of the, 2; Weight of, 148, 252; in Glamorgan, 384.
- Hawk, Sparrow-, Recovery of marked, 55, 282; Movements of ringed from abroad, 137; Rounding-up Magpies, 249.
- HENDY, E. W., Letter on Redshanks displaying in December, 361.
- Heron, Recovery of marked, 55, 282; Index of Population of, 1935, 98; Movements of ringed, to and from abroad, 137.
- , Great White, in Wiltshire, 249.
- hiaticula*, *Charadrius h.*, see Plover, Ringed.
- HIBBERT-WARE, Miss A., Report of an Investigation of the Food of captive Little Owls, 302; Note on Blackbird's nest with eight eggs, 81; Letters on Regular Feeding-Time of a Marsh-Tit, 90; A Chart of Bird-Song, 259; Sounds produced by Little Owl, 332.
- hirundo*, *Sterna h.*, see Tern, Common.
- hispanica*, *Ænanthe*, see Wheatear, Black-eared.
- Hobby, in Ireland, 128; Passing Food on the wing, 179, 254; Eating Swallow or Martin in air, 179; Recovery of marked, 282.
- HOFFMAN, H. J., Note on Black-necked Grebes in Surrey in April, 117.
- HOLLOM, P. A. D., Note on Numbers of Velvet-Scoters on Sussex-Kent Coast, 327; Letter on The Movements of Sea-Birds, 331.
- HOLMES, P. F., Notes on Whooper Swan in Yorkshire in June, 251; Red-necked Phalarope in Yorkshire, 252.
- HOMES, RICHARD C., Note on Spotted Redshanks in Kent in December, 329.
- hortensis*, *Sylvia h.*, see Warbler, Orphean.
- hortulana*, *Emberiza*, see Bunting, Oortolan.
- hrota*, *Branta b.*, see Goose, Light-breasted Brent.
- HUMPHREYS, G. R., Notes on the Coot as a migrant, 118; Birds in Ireland from 1930 to 1934, 127; American Pectoral Sandpiper in Ireland, 218; Interbreeding of Carrion-Crow with Hooded Crow in Ireland, 238.
- hyemalis*, *Clangula*, see Duck, Long-tailed.
- hypoleuca*, *Muscicapa*, see Flycatcher, Pied.
- hypoleucos*, *Tringa*, see Sandpiper, Common.
- INGRAM, GEOFFREY, C. S., and SALMON, H. MORREY, Field Notes on the Coot, with special reference to its winter movements and driving habits, 38; Note on Bullfinches in a flock, and Hawfinches in Glamorgan, 384.
- interpres*, *Arenaria i.*, see Turnstone.
- Ireland, Notes on Birds in, from 1930 to 1934, 127.
- ispida*, *Alcedo a.*, see Kingfisher.
- Jackdaw, Recovery of marked, 277.
- Jay, Large Movement of in Hampshire, 174, 212; Feeding habits of, 214; Movements of, in France, 297.
- , Continental, in Kent, 27; in Essex, 324.
- JOHNSTON, TOM L., Nesting habits of the Willow-Tit in Cumberland, 378.
- JOURDAIN, REV. F. C. R., The courtship of the Red-backed Shrike and the Woodchat, 95; Review of *The Little Owl*, 34; Notes on size of clutches of Blackbird, 81; Number of eggs laid by Song-Thrush, 115; Weights of Hawfinch, 148; Pale blue eggs of Spotted Flycatcher, 178; Waxwing in Hants., 330; Sexual Display of Hedge-Sparrow, 360; Review of *The Birds of the Firth of Clyde*, 386.

- JOY, Dr. NORMAN H., Note on Hen-Harrier and Scandinavian Lesser Black-backed Gull in Essex, 247.
- KAY, G. T., Letter on Sea-Bird Movements, 361.
- KENNEDY, Rev. P. G., Note on Land-Rail laying twice in twenty-four hours, 219.
- KERR, Mrs. H. RAIT, Note on Bullfinches in a flock, 357; Letter on Greenfinch's repeated return to trap, 361.
- Kestrel, Food of, 28; Recovery of marked, 55; Eating Prey in air, 246.
- Kingfisher, Recovery of marked, 282; Courting Habits of, 326.
- KIRKE, D. B., Note on Breeding Places of Fulmar Petrels in Sutherlandshire, 117.
- Kittiwake, Abnormal variety of, 63; Nesting on a Building, 89; Movements of ringed to abroad, 144; Recovery of marked, 320; in N. Atlantic, 375.
- kleinschmidti*, *Parus a.*, see Titmouse, British Willow-.
- Knot, Eating Molluscs, 183.
- KNOWLES, RICHARD E., Note on Golden Oriole seen in Cheshire, 286.
- LACK, DAVID, Note on Robin repeatedly re-trapped, 288; Letter on Woodland Bird Enquiry, 388.
- , D. and H. L., Territory: some recent American work, 255.
- lapponica*, *Limosa*, see Godwit, Bar-tailed.
- Lapwing, Recovery of marked, 75, 314; Movements of ringed from abroad, 141.
- Lark, Eastern Sky-, in Outer Hebrides, 32.
- , Shore-, in Forth, 119.
- , Wood-, in Lanarkshire, 120; Incubation-Period, 176.
- LEACH, Miss E. P., see WITHERBY, H. F.
- leucopterus*, *Chlidonias*, see Tern, White-winged.
- , *Larus*, see Gull, Iceland.
- leucorodia*, *Platalea l.*, see Spoonbill.
- leucorrhoa*, *Oceanodroma*, see Petrel, Leach's.
- leucura*, *Ænanthe l.*, see Wheatear, Black.
- LEVETT, MARY J., Notes on Fulmar Petrel Colonies in Northumberland, 1935, 236.
- LEWIS, Sir T., Note on Moor-hen using wings under water, 61.
- limosa*, *Limosa*, see Godwit, Black-tailed.
- Linnet, in Shetland, 173; Recovery of marked, 277.
- LLOYD, BERTRAM, Notes on The Great Crested Grebe at Elstree Reservoir, 28; Behaviour of a Great Crested Grebe on ice, 290; Letter on Diurnal Movements of Manx Shearwaters not migratory, 260.
- lobatus*, *Phalaropus*, see Phalarope, Red-necked.
- LOCKLEY, R. M., Movements of Manx Shearwaters, 105; Skokholm Bird Observatory, 222; Note on Pied Wagtail Roost in Gorse, 58.
- , —, see EDWARDS, V. C. WYNNE.
- London, Inner, Birds of, 345.
- LONGSTAFF, Dr. TOM G., Note on Migrants seen in Shetland, 174.
- LONSDALE, W. STANLEY, Note on Blue Tits feeding young Robins, 113.
- LOW, Dr. G. CARMICHAEL, and PEDLER, E. G., Note on Snow-Bunting in Inner London, 239.
- MACKWORTH-PRAED, C. W., and GILBERT, H. A., The Orierton Decoy—Past and Present, 167.
- MACPHERSON, A. HOLTE, Birds of Inner London, 345; Notes on the Goldeneye of Kensington Gardens, 60; Bewick's Swan in Middlesex, 216.
- macrura*, *Sterna*, see Tern, Arctic.
- McWILLIAM, Rev. J. M., Note on Roost of Twites in Outer-Hebrides, 78.
- MADOC, Col. H. W., Notes on Spoonbill in the Isle of Man, 216; Yellowshank observed in Isle of Man, 218.
- Magpie, Recovery of marked, 277.

- major*, *Dryobates m.*, see Woodpecker, Great Spotted.
- Mallard, Recovery of marked, 73, 283; Movements of ringed to abroad, 137.
- Mallophaga on sickly birds, 356.
- Man, Isle of, Notes from the, 1933 and 1934, 70.
- MANSON-BAHR, Dr. PHILIP, Note on Courting Display of a male Firecrest, in Surrey, in April, 27.
- marila*, *Nyroca m.*, see Duck, Scaup.
- marinus*, *Larus*, see Gull, Great Black-backed.
- Marked Birds, Recovery of, 50, 73; correction, 153; 277, 310.
- MARPLES, GEORGE, Observations on Times of Feeding, 45; Starlings fighting for Nesting Sites, 321; Notes on unusual food of Song-Thrush, 115; Some Results of Trapping and Ringing, 22.
- Martin, House-, Census of, 21; Sealing up a House-Sparrow, 123; in Shetland, 174; Recovery of marked, 281; Late in Kent, 293.
- , Sand-, in Shetland, 173; Late, in Northumberland, 253.
- MASSEY, HERBERT, Note on Black-bird Eating Flowers, 243.
- MATHEWS, GREGORY M., Some Remarks on the Patagial Fan of the three British Breeding Petrels (Plates 5 and 6), 201; Note on a New Name for the British Redshank, 152.
- MAYES, W. E., Note on Pied Wagtail Roost on a Leicester Building, 56.
- media*, *Capella*, see Snipe, Great.
- MEDLICOTT, W. S., Note on Roller in Yorkshire, 326.
- megarhyncha*, *Luscinia m.*, see Nightingale.
- melanocephala*, *Sylvia m.*, see Warbler, Sardinian.
- melanotos*, *Calidris*, Sandpiper, American Pectoral.
- melophilus*, *Erithacus r.*, see Robin, British.
- Merlin, Movements of ringed from abroad, 136.
- merula*, *Turdus m.*, see Blackbird.
- Midlothian, Status of Raven and other birds in, 211.
- minuta*, *Calidris*, see Stint, Little.
- MITCHELL, M., Notes on Injury-feigning Movements of Ringed Plover, 61; Lesser Spotted Woodpecker in Carnarvonshire, 246; Ruff in Denbighshire, 251; Letter on Pied Wagtails chasing Martins, 259.
- modularis*, *Prunella*, see Sparrow, Hedge.
- mollissima*, *Somateria m.*, see Eider.
- MONRO, MISS M., Note on Redshank displaying in December, 328.
- montanus*, *Passer m.*, see Sparrow, Tree.
- MONTGOMERY, LESLIE W., Notes on Inter-breeding of Carrion-Crow and Hooded Crow in Ireland, 238.
- montifringilla*, *Fringilla*, see Brambling.
- MOORE, H. B., see SPOONER, G. M.
- Moorhen, Using wings under water, 61; Large clutch of eggs of, 64; Recovery of marked, 77, 320.
- MORRIS, STANLEY, Letter on a Chart of Bird-Song, 258.
- MOUNTFORT, G. R., Note on Variations in the weights of birds, 145, 252.
- nævia*, *Locustella n.*, see Warbler, Grasshopper.
- Nature Photography, International Exhibition of, 220.
- nebularia*, *Tringa*, see Greenshank.
- nesa*, *Pyrhula p.*, see Bullfinch.
- newtoni*, *Parus m.*, see Titmouse, Great.
- NICHOLSON, E. M., The Index of Heron Population, 1935, 98; Reviews of *A History of the Birds of Middlesex*, 32, "*Habits and Distribution of Birds in the North Atlantic*," 66.
- niger*, *Chlidonias n.*, see Tern, Black.
- Nightingale, Census of, in Gloucestershire, 81; Probable breeding of, in Denbighshire, 59.
- nigra*, *Oidemia n.*, see Scoter, Common.
- nigricollis*, *Podiceps n.*, see Grebe, Black-necked.

- nisus*, *Accipiter*, see Hawk, Sparrow-.
- nivalis*, *Plectrophenax*, see Bunting, Snow-.
- noctua*, *Athene*, see Owl, Little.
- nordmanni*, *Glareola*, see Pratincole, Black-winged.
- NORRIS, C. A., Note on Pintail with brood and Whoopers in Inverness-shire, 180.
- Obituary: Archibald Thorburn, 172.
- obscurus*, *Parus c.*, see Titmouse, Blue.
- Observatory, Skokholm Bird, 222.
- occidentalis*, *Prunella m.*, see Sparrow, Hedge-.
- , *Hæmatopus o.*, see Oyster-catcher.
- œdicnemus*, *Burhinus*, see Curlew, Stone-.
- œnanthe*, *Ænanthe æ.*, see Wheatear.
- œnas*, *Columba*, see Dove, Stock-.
- OLDHAM, CHAS., Redshank nesting at Tring Reservoirs. An effect of the drought, 381. Note on Grey Plover in Hertfordshire, 152.
- olor*, *Cygnus*, see Swan, Mute.
- Orielton Decoy—Past and Present, 107.
- orientalis*, *Otis tetrax*, see Bustard, Eastern Little.
- Oriole, Golden, in Ireland, 127; seen in Cheshire, 286.
- oriolus*, *Oriolus o.*, see Oriole, Golden.
- Osprey, in Northumberland, 254.
- ostralegus*, *Hæmatopus*, see Oyster-catcher.
- OWEN, J. H., Notes on breeding of a pair of Spotted Flycatchers, 177.
- Owl, Barn-, Recovery of marked, 55, 282.
- , —, Dark-breasted, in Orkney and Isle of May, 88; in Ireland, 128.
- , Little, Recovery of marked, 55, 282; Investigation of the food of captive, 302; Sounds produced by, 361.
- , Short-eared. Movements of ringed to abroad, 136.
- Oyster-catcher and Limpets, 90; Movements of ringed from abroad, 141; Laying six eggs, 151; Nest with five eggs, 254; Recovery of marked, 314; inland in Cheshire, 349.
- paludicola*, *Acrocephalus*, see Warbler, Aquatic.
- palumbus*, *Columba*, see Pigeon, Wood-.
- palustris*, *Acrocephalus*, see Warbler, Marsh-.
- parasiticus*, *Stercorarius*, see Skua, Arctic.
- PARKER, H. W., Note on Shag in fresh waters infested with parasites, 328.
- PARMENTER, L., Notes on Grey Lag-Geese in Kent, 116; Diptera as Food of Starling and Rock-Pipit, 113.
- PARSONS, B. T., Note on Food of Kestrel, 28.
- Partridge, Common, "Incubation" by both Cock and Hen, 62, 120.
- , Red-legged, Nesting Habits, 118; Breeding-habits of, 156.
- Patagial Fan of the three British breeding Petrels, 201.
- PATRICK, R. W., Note on Mute Swans attacking Bullock, 116.
- PAULSON, C. W. GEOFFREY, and FORGES, G. DES. Note on Kentish Plover in Berkshire, 30.
- PEASE, H. J. R., Note on Migrants seen in Shetland, 173.
- PEDLER, E. G., see LOW, Dr. G. CARMICHAEL.
- pelagicus*, *Hydrobates*, see Petrel, Storm-.
- penelope*, *Anas*, see Wigeon.
- perdix*, *Perdix*, see Partridge, Common.
- peregrinus*, *Falco p.*, see Falcon, Peregrine.
- Petrel, Fulmar, Breeding Status in Yorkshire, 63; Breeding Places in Sutherlandshire, 117, 150; Probable breeding in Pembrokeshire, 117; Status of Breeding in Yorkshire, 151; Patagial Fan of, 201; Breeding in the Farne Islands, 360; Notes on Colonies in Northumberland, 236; in N. Atlantic, 371.

- , Leach's, Exhausted, revived with Cod-liver Oil, 216; in N. Atlantic, 366.
- , Storm-, Exhausted, revived with olive oil, 180; Patagial Fan of, 201; Recovery of marked, 313.
- petrosus*, *Anthus s.*, see Pipit, Rock-Phalarope, Grey, in Hampshire, 325; in Worcestershire, 354.
- , Red-necked, in Merionethshire, 88; in Yorkshire, 252.
- philomelus*, *Turdus e.*, see Thrush, Continental Song-.
- phænicurus*, *Phænicurus*, see Red-start.
- pica*, *Pica*, see Magpie.
- Pigeon, Carrier, Alighting on Water, 254.
- , Wood-, Feeding on Cherries, 182; Alighting on water, 254; Recovery of marked, 314.
- pileata*, *Pyrhula p.*, see Bullfinch.
- Pintail, Breeding in Ireland, 130; Movements of ringed from abroad, 138; With brood in Inverness-shire, 180.
- Pipit, Meadow-, Recovery of marked, 53, 279; Movements of ringed to abroad, 135; in Shetland, 174.
- , Rock-, Diptera as Food, 113; Eating Molluscs, 183; Recovery of marked, 278.
- , Water-, in Worcestershire, 122, in Cambridge, 122; at Staffordshire Reservoirs, 350.
- PITCHER, R. S., Note on Red-necked Grebe in Kent, 328.
- platyrhyncha*, *Anas p.*, see Mallard.
- Plover, Golden, in Shetland, 174; Eating Molluscs, 183.
- , Grey, in Hertfordshire, 152; inland in Cheshire, 349; in Worcestershire, 353.
- , Kentish, in Berkshire, 30.
- , Ringed, Injury - feigning movements of, 61; Recovery of marked, 75; Movements of ringed to abroad, 141; Eating Molluscs, 183.
- Pochard, Common, Breeding in Cambridgeshire, 123.
- polyglotta*, *Hippolais*, see Warbler, Melodious.
- POPHAM, H. LEYBORNE, Letter on Weight of Pink-footed Goose, 36.

- PORTAL, MAJOR M., Note on Large Movement of Jays in Hampshire, 174.
- POUNDS, HUBERT E., Notes on Common Buzzards in Surrey, 83, 357; Sparrow-Hawk Rounding-up Magpies, 249.
- pratensis*, *Anthus*, see Pipit, Meadow-.
- Pratincole, Black-winged in co. Mayo, 151.
- PRICE, M. PHILIPS, Notes on Hen Willow-Warbler returning to nest in same place, 80; Census of Nightingales in Gloucestershire, 81; Population Problems and Territorial Habits of Chiff-chaffs and Willow-Warblers, 158.
- Puffin, Recovery of marked, 320.
- puffinus*, *Puffinus p.*, see Shearwater, Manx.
- pugnax*, *Philomachus*, see Ruff.
- pygargus*, *Circus*, see Harrier, Montagu's.
- pyrrhocorax*, *Pyrrhocorax*, see Chough.
- Quail, in Yorkshire in winter, 64; in Herefordshire and Shropshire, 89.
- querquedula*, *Anas*, see Garganey.
- Rail, Land-, Laying twice in twenty-four hours, 152, 219; Recovery of marked, 320; Status of, in Kent, 359.
- RALFE, P. G., Notes from the Isle of Man, 1933, and 1934, 70.
- Raven, Status of, in Midlothian, 211.
- rayi*, *Motacilla f.*, see Wagtail, Yellow.
- Razorbill, Inland in Essex, 63; Recovery of marked, 77, 320; Movements of ringed to abroad, 144; Movements of, off Cornwall, 203.
- Recovery of Marked Birds, 50, 73; Correction, 153; 277, 310.
- Redpoll, Greenland, at Isle of May, 120.
- , Lesser, Nidification of, 126; Movements of ringed from abroad, 135.

Redshank, Recovery of marked, 76, 316; Movements of ringed to abroad, 141; Eating Molluscs, 183; Displaying in December, 328, 361; Nesting at Tring Reservoirs, an effect of the drought, 381.

——, British, New Name for the, 152.

——, Iceland, in Lancashire, 86; Movements of ringed from abroad, 141; in Hampshire, 325.

——, Spotted, in Hampshire, 30, 325; in Isle of Man, 72, 153; in Forth, 120; in Northumberland, 185; in Kent in December, 329; inland in Cheshire, 350.

Redstart, in Shetland, 173; Recovery of marked, 281.

——, Black, in Essex, 28; in Caithness, 87; Nestling of, 110; in Gloucestershire, 116; in Worcestershire, 244; in Surrey, 253; at Isle of May, 329.

REEVE, J. S., Note on Tree-Sparrow's Nest in a Thorn Hedge, 149; Letters on Breeding-habits of Red-legged Partridge, 156.

Reviews :—

A History of the Birds of Middlesex, 32.

British Trust for Ornithology. First Report, Spring, 1935, 33.

The Little Owl: an examination of its Food Habits, 34.

A Revised List of the Birds of Dorset, 35.

Birds of a Lancashire Cotton Town. Being Notes on the Avifauna of Heywood, 35.

The Birds of Midlothian, 64.

"On the Habits and Distribution of Birds in the North Atlantic", 66.

The Nature of a Bird's World, 91.

Transactions of the Norfolk and Norwich Naturalists Society for 1933-4, 121.

The London Naturalist, 1934, 122.

Report on the Birds of Warwickshire and Worcestershire, 1934, 122.

Reviews (*continued*) :—

Cambridge Bird Club Report, 1934, 122.

Report on Somerset Birds, 1934, 123.

Ornithological Record for Derbyshire, 1933-34, 123.

South-Eastern Bird Report, Being an account of Bird-Life in Hampshire, Kent, Surrey and Sussex during 1934, 123.

The Abbotsbury Swannery, 154. Every Garden a Bird Sanctuary, 188.

Territory, Some Recent American Work, 255.

A Vertebrate Fauna of Forth, 299.

A Pocket-Book of British Birds, 331.

How to know British Birds, 363.

The Birds of the Firth of Clyde, 386.

Birds of the Green Belt, 387.

ridibundus, *Larus*, see Gull, Black-headed.

Ringed Birds, see Marked Birds and "British Birds" Marking Scheme.

——, Movements of, from Abroad to the British Islands and from the British Islands to Abroad, Addenda IV., 132.

Ringers, Notice to, 145.

RINGROSE, BERNARD J., Notes on Grasshopper-Warblers in the New Forest, 287.

riparia, *Riparia* r., see Martin, Sand-

RIVIERE, B. B., Note on Sykes's Wagtail as a British Breeding-bird, 286.

ROBERTS, J. E., Note on Irregular laying of Blackcap, 58.

Robin, Recovery of marked, 54; Changing mates between broods, 178; Repeatedly re-trapped, 288.

ROBINSON, H. W., Notes on Oystercatcher laying six eggs, 151; Mortality among young Common Terns.

robusta, *Tringa totanus*, see Redshank, Iceland.

Roller, in Yorkshire, 326.

- Rook, number of young reared, 26 ;
Recovery of marked, 50 ;
Movements of ringed from
abroad, 132 ; Habits of, 306 ;
Survival and Habits of young,
334.
- ROOKE, K. B., Notes on American
Pectoral Sandpiper in Dorset,
217 ; Dark- and Pale-breasted
Brent Geese separating, 289 ;
Birds seen in the North Atlan-
tic, August and September
1935, 366.
- , —, and SMITH, K. D., Note
on Spotted Redshank in Hamp-
shire, 30.
- roseus*, *Ægithalos c.*, see Titmouse,
Long-tailed.
- ROSS, Miss WINIFRED M., Notes on
Some Incubation- and Fledge-
ling-periods, III.
- rostrata*, *Carduelis f.*, see Redpoll,
Greenland.
- rubetra*, *Saxicola r.*, see Whinchat.
- rufa*, *Alectoris r.*, see Partridge,
Red-legged.
- Ruff, in Shetland, 173 ; in Den-
bighshire, 251 ; in Gloucester-
shire, 252 ; in Hampshire, 324.
- ruficollis*, *Podiceps*, see Grebe,
Little.
- rustica*, *Hirundo r.*, see Swallow.
- rusticola*, *Scolopax*, see Woodcock.
- sabini*, *Xema*, see Gull, Sabine's.
- SALMON, H. MORREY, see EDWARDS,
V. C. WYNNE.
- , —, see INGRAM, GEOFFREY,
C. S.
- Sandpiper, American Pectoral, in
Ireland, 131 ; in Somerset, 183 ;
in Dorset, 217 ; in Ireland, 218.
- , —, Common, Recovery of
marked, 316.
- sandvicensis*, *Sterna s.*, see Tern,
Sandwich.
- SAUNDERS, COL. C., Note on Sooty
Terns seen in Dorset, 86.
- Scaup, see Duck, Scaup.
- schænobænus*, *Acrocephalus*, see
Warbler, Sedge-.
- Scoter, Velvet-, in Ireland, 130 ;
Numbers of on Sussex-Kent
Coast, 327.
- scoticus*, *Parus*, see Titmouse,
Crested.
- Sea-Bird Movements, A Study of,
203, 260, 298, 361.
- senator*, *Lanius*, see Shrike, Wood-
chat.
- SERLE, W., Jnr., Notes on Mortality
among young Red-throated
Divers, 181 ; Status of the
Raven and other birds in
Midlothian, 211.
- SETH-SMITH, D., Note on Bramb-
lings in Inner London, 357.
- Shag, Recovery of marked, 74, 310 ;
in Inner London, 293 ; Inland
infested with parasites, 328 ;
in Surrey, 330.
- Shearwater, Great, in N. Atlantic,
369.
- , Manx, Spring Migration
off Cape Cornwall, 43 ;
Movements of, 105 ; Move-
ments of ringed to abroad, 140 ;
Patagial Fan of, 201 ; Move-
ments of, off Cornwall, 203 ;
Diurnal movements, not Migra-
tory, 260 ; Recovery of marked,
75, Correction to, 153, 313 ; in
N. Atlantic, 369.
- , Sooty, in Pembrokeshire, 233 ;
in N. Atlantic, 370.
- Sheld-Duck, see Duck, Sheld.
- Shoveler, in Shetland, 88 ; Move-
ments of ringed from abroad,
138.
- Shrike, Great Grey, in Suffolk, 32,
386 ; in Wiltshire, 120.
- , Red-backed, Killing adult
Linnet, 87 ; Courtship of, 95 ;
Unusual nesting-site, 243 ; at
Isle of May, 329.
- , Woodchat, Courtship of, 95 ;
Recorded as seen in Caithness,
360.
- sinensis*, *Phalacrocorax carbo*, see
Cormorant, Southern.
- Skokholm Bird Observatory, 222.
- Skua, Arctic, reported Breeding in
West Inverness-shire, 89.
- , Great, off Tenerife, 30 ; in
Forth, 120 ; Movements of
ringed to abroad, 144 ; in
N. Atlantic, 375.
- skua*, *Stercorarius s.*, see Skua,
Great.
- SMITH, K. D., and ROOKE, K. B.,
Notes from Hampshire and
Dorset, 324.
- Snipe, Recovery of marked, 76, 316.

- Snipe, Færoe, Movements of ringed from abroad, 141.
- , Great, in Scotland, 88; in Shetland, 174.
- Song, A Chart of Bird-, 190, 258, 259, 294, 296, 332, 361.
- SPARROW, COL. R., Note on Nesting Habits of Red-legged Partridge, 118.
- Sparrow, Hedge-, Sexual Display, 360.
- , House-, Sealed up by House-Martin, 123; Late Nesting of, 253; Recovery of marked, 281.
- spermologus*, *Colæus m.*, see Jackdaw.
- spinoletta*, *Anthus s.*, see Pipit, Water-.
- Spoonbill, in Sussex and Kent, 84; in Ireland, 129; in the Isle of Man, 216.
- SPOONER, G. M., and MOORE, H. B., Letter on Oyster-catchers and Limpets, 90.
- squatarola*, *Squatarola*, see Plover, Grey.
- Starling, Recovery of marked, 50, 277; Diptera as Food, 113; Movements of ringed, to and from abroad, 132; Fighting for Nesting Sites, 321.
- stellaris*, *Botaurus s.*, see Bittern.
- stellatus*, *Colymbus*, see Diver, Red-throated.
- Stint, Little, in Shetland, 173; in Gloucestershire, 252.
- , Temminck's, in Hampshire, 324, 325; in Staffordshire, 351.
- strepera*, *Anas*, see Gadwall.
- striata*, *Muscicapa s.*, see Fly-catcher, Spotted.
- subbuteo*, *Falco*, see Hobby.
- Swallow Enquiry, Report on the, for 1934, 3.
- Swallow, Recovery of marked, 54, 281; Clutches and Broods, 149; in Shetland, 173; Deprived of prey by Pied Wagtails, 176, 259; Food of Nestling, 244; Results of Ringing and Trapping in Carmarthenshire, 245; Late in Kent, 253.
- Swan, Bewick's in Middlesex, 216; in Lancashire, 251.
- , Mute, Attacking Bullock, 116; Killed by Pike, 130.
- Swan, Whooper, in Ireland, 129; in Inverness-shire, 180; in Yorkshire in June, 251.
- SWEETLOVE, J. A., and BURLINSON, F. J., Note on exhausted Storm-Petrel revived with olive-oil, 180.
- Swift in Shetland, 173, 174; Late stay of, 254; Recovery of marked, 282.
- tadorna*, *Tadorna*, see Duck, Sheld-.
- TAYLOR, FRED. Colour of the bill and other Notes on the Twite, 102; Colour of the bill of the Twite, 239.
- , J. S., Note on Song-Thrushes Feeding on Water-Snails, 243.
- Teal, Recovery of marked, 73, 283; Movements of ringed, to and from abroad, 137, 138, 188.
- , American Blue-winged, 130.
- temminckii*, *Calidris*, see Stint, Temminck's.
- Tern, Arctic, in Middlesex, 186, 187; Feeding on Biscuit, 255.
- , Black, in Hampshire, 32, in Breconshire, 32; in Middlesex, 186; in Inner London, 345.
- , Common, in Shropshire, 89; in Shetland, 174; Mortality among young, in Lancashire, 186; in Middlesex, 186; Recovery of marked, 318.
- , Sandwich, Recovery of marked, 76, 318; Movements of ringed to abroad, 142.
- , Sooty, in Dorset, 86; in Norfolk, 187; in Kent, 187.
- , White-winged Black, in Norfolk, 122.
- "Territory" recorded for Nightingale in Seventeenth Century, 388.
- TETLEY, H., Notes on American Pectoral Sandpiper in Somerset, 183; Notes from Barrow Gurney Reservoir, Somerset, 354.
- THOMAS, J. F., Notes on the Food of Nestling Swallows, 244; Results of Ringing and Trapping Swallows in Carmarthenshire, 245.
- THOMPSON, GORDON B., Note on Mallophaga on sickly birds, 356.

- THORBURN, ARCHIBALD, Obituarial Notice of, 172.
- THORPE, W. H., Remarkable Spring Migration of Manx Shearwaters and other Sea Birds off Cape Cornwall, 43.
- Thrush, Mistle-, Recovery of marked, 279.
- , Song-, Recovery of Marked, 53, 280; Laying nine eggs, 115; Unusual food of, 115; Movements of ringed, to and from abroad, 135; Laying seven eggs, 153, 187; Feeding on Water-Snails, 243; Feeding on Winkles, 288.
- , Continental, Breeding in Shetland, 87.
- TICEHURST, Dr. N. F., Notes on Former Abundance of Black-Grouse in Sussex, 31; Hen-Harriers in Sussex and Kent 83; Spoonbill in Sussex and Kent, 84; Grey Lag-Geese in Kent, 84; Early nesting of Sheld-Duck in Kent and Sussex, 85; Sykes's Wagtail as a British Breeding-bird, 239; Review of *The Abbotsbury Swannery*, 154.
- , Dr. CLAUD B., Note on examination of Pellets of Montagu's Harrier, 248.
- tinnunculus*, *Falco t.*, see Kestrel.
- Titmouse, Blue, Nesting in Kingfisher's Nesting-hole, 58; Feeding young Robins, 113; Building in Beehive, 215; Recovery of marked, 279.
- , Crested, Incubation- and Fledgeling-periods, 111.
- , Great, a Triangle, 78.
- , Long-tailed, Three at one nest, 80.
- , Marsh-, Regular Feeding-time of, 90.
- , Willow-, Distribution and Habits in Sussex, 241; Nesting habits in Cumberland, 378.
- TOOK, G. E., Letter on Census of Nightingales, 121.
- torda*, *Alca*, see Razorbill.
- torquilla*, *Jynx*, see Wryneck.
- totanus*, *Tringa t.*, see Redshank.
- Trapping and Ringing, Some Results of, 22.
- tridactyla*, *Rissa.*, see Kittiwake.

- trochilus*, *Phylloscopus*, see Warbler Willow-.
- trogodytes*, *Trogodytes t.*, see Wren.
- TUCKER, B. W., Reviews of *The Nature of a Bird's World*, 91, *How to Know British Birds*, 363.
- TULLY, H., Note on Spotted Red-shanks in Northumberland, 185.
- Turnstone, Eating Molluscs, 183.
- turtur*, *Streptopelia t.*, see Dove, Turtle-.
- Twite, Roost of, in Outer Hebrides, 78; Colour of the bill and other notes on the, 102, 239.
- urbica*, *Delichon u.*, see Martin, House-.
- vanellus*, *Vanellus*, see Lapwing.
- VENABLES, L. S. V., Note on Song-Thrush Feeding on Winkles, 288; Letter on The Time of Singing of the Grasshopper Warbler, 332.
- vidalii*, *Athene n.*, see Owl, Little.
- virescens*, *Picus v.*, see Woodpecker, Green.
- viscivorus*, *Turdus v.*, see Thrush, Mistle-.
- vulgaris*, *Sturnus v.*, see Starling.
- Wagtail, Blue-headed, see under Wagtail, Sykes's.
- , Pied, Roost on a Leicester Building, 56; Roost in Gorse, 58; Depriving Swallows of their prey, 176, 259; Recovery of marked, 278.
- , Sykes's, as a British Breeding Bird, 199, 239, 240, 286.
- , Yellow, Recovery of marked, 53; Movements of ringed to abroad, 135.
- WALLIS, E. ARNOLD, Letter on Breeding-habits of Red-legged Partridge, 156; Note on two Blue Tits building in Beehive, 215.
- , E. C., Note on unusual food of Song-Thrush, 115.
- Warbler, Aquatic, seen in Ireland, 128.
- , Dartford, in North Surrey, 253.
- , Grasshopper-, in the New Forest, 287.
- , Marsh-, in Hampshire, 324.

- Warbler, Melodious, Nestling of, 108.
 ———, Northern Willow-, at Isle of May, 329.
 ———, Orphean, Nestling of, 108.
 ———, Rufous, Nestling of, 108.
 ———, Sardinian, Nestling of, 108.
 ———, Sedge-, Incubation- and Fledgeling-periods, 111.
 ———, Subalpine, Nestling of, 108 ; in Ross-shire, 292.
 ———, Willow-, Hen returning to nest in same place, 80 ; Population Problems and Territorial Habits, 158 ; Recovery of marked, 279.
- WARE, REGINALD, Note on Distribution and some Habits of Willow-Tit in Sussex, 241.
- WATSON, J. B., Notes on Hobby passing food on the wing, 179 ; A Party of Black-necked Grebes in Middlesex, 181.
- Waxwing, in Hampshire, 32, 330 ; in Ireland, 128 ; in Middlesex, 292 ; in Derbyshire, 292 ; in Northumberland, 330 ; in Durham, 330 ; in Warwickshire, 386.
- Weights of Birds, Variations in, 145, 252.
- Wheatear, Movements of ringed to abroad, 136.
 ———, Black, a nest of, 94 ; Nestling of, 109.
 ———, Black-eared, Nestling of, 108.
- Whinchat, in Shetland, 173 ; Recovery of marked, 281.
- WHITE, W. WALMESLEY, Note on Sykes's Wagtail as a British Breeding-bird, 240.
- Whitethroat, in Shetland, 173 ; Incubation-Period, 176.
 ———, Lesser, in Shetland, 173 ; Late Stay of, 253.
- Wigeon, Recovery of marked, 73, 310.
- WILLIAMS, J. G., Note on Garganey in Monmouthshire, 251.
 ———, W. J., Note on Black-winged Pratincole in co. Mayo, 151.
- WINDSOR, R. E., On the Nidification of the Lesser Redpoll, 126.
- WING, JOHN SLADEN, Note on Sooty Tern in Norfolk, 187.
- WITHERBY, H. F., The " British Birds " Marking Scheme, Progress for 1935, 338 ; Letter on Breeding-habits of Red-legged Partridge, 156 ; Notes on Large Movement of Jays in Hampshire, 175, 212 ; Incubation-Periods of Wood-Lark and Whitethroat, 176 ; Distribution and Habits of Willow-Tit, 242 ; Numbers of Montagu's Harriers Breeding in Britain in 1935, 247 ; Southern Cormorants in Dorset, Suffolk, Sussex and Kent, 358.
 ———, ———, and LEACH, Miss E. P., Movements of Ringed Birds from abroad to the British Isles and from the British Isles abroad. Adenda IV., 132.
- WONTNER-SMITH, C., Note on Number of young reared by the Rook, 26.
- Woodchat, see Shrike. Woodchat.
- Woodcock, Movements of ringed to abroad, 141, 142 ; Recovery of marked, 76, 316.
- Woodland Bird Inquiry, 388.
- Woodpecker, Mythology of, 35.
 ———, Great Spotted, in Ireland, 128 ; in Shetland, 173, 174, 215.
 ———, Green, in West Lothian, 87 ; Feeding on cherries, 182.
 ———, Lesser Spotted, in Anglesey, 179 ; in Carnarvonshire, 246, 293.
- Wren, Common, Incubation- and Fledgeling-periods, 111.
 ———, Fire-crested, Courting display in Surrey, in April, 27.
 ———, Golden-crested, Incubation- and Fledgeling-periods, 111.
- Wryneck, in Caithness, 87.
- yarrellii*, *Motacilla a.*, see Wagtail, Pied.
- Yellowshank, in Cambridgeshire, 123 ; in Isle of Man, 218.



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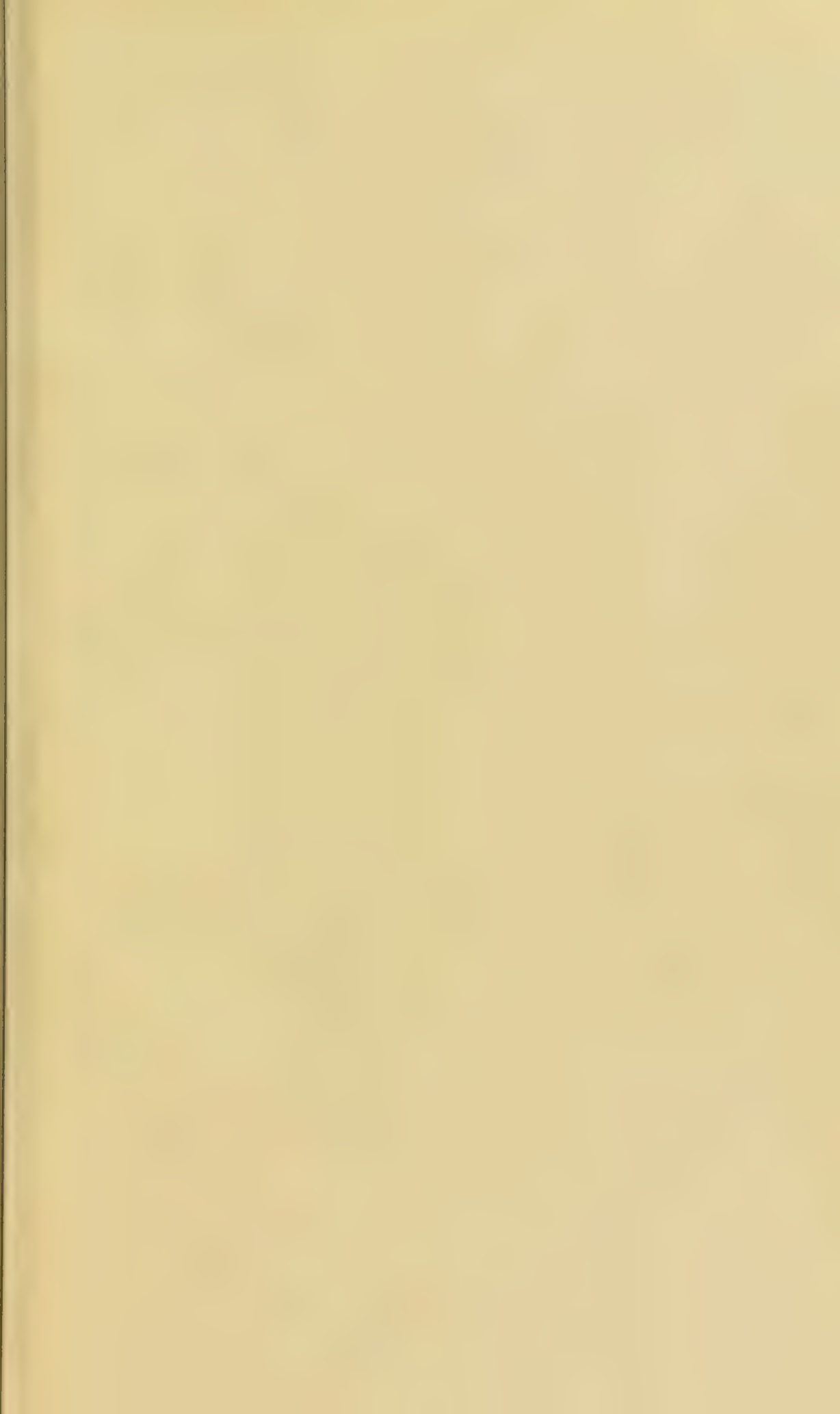
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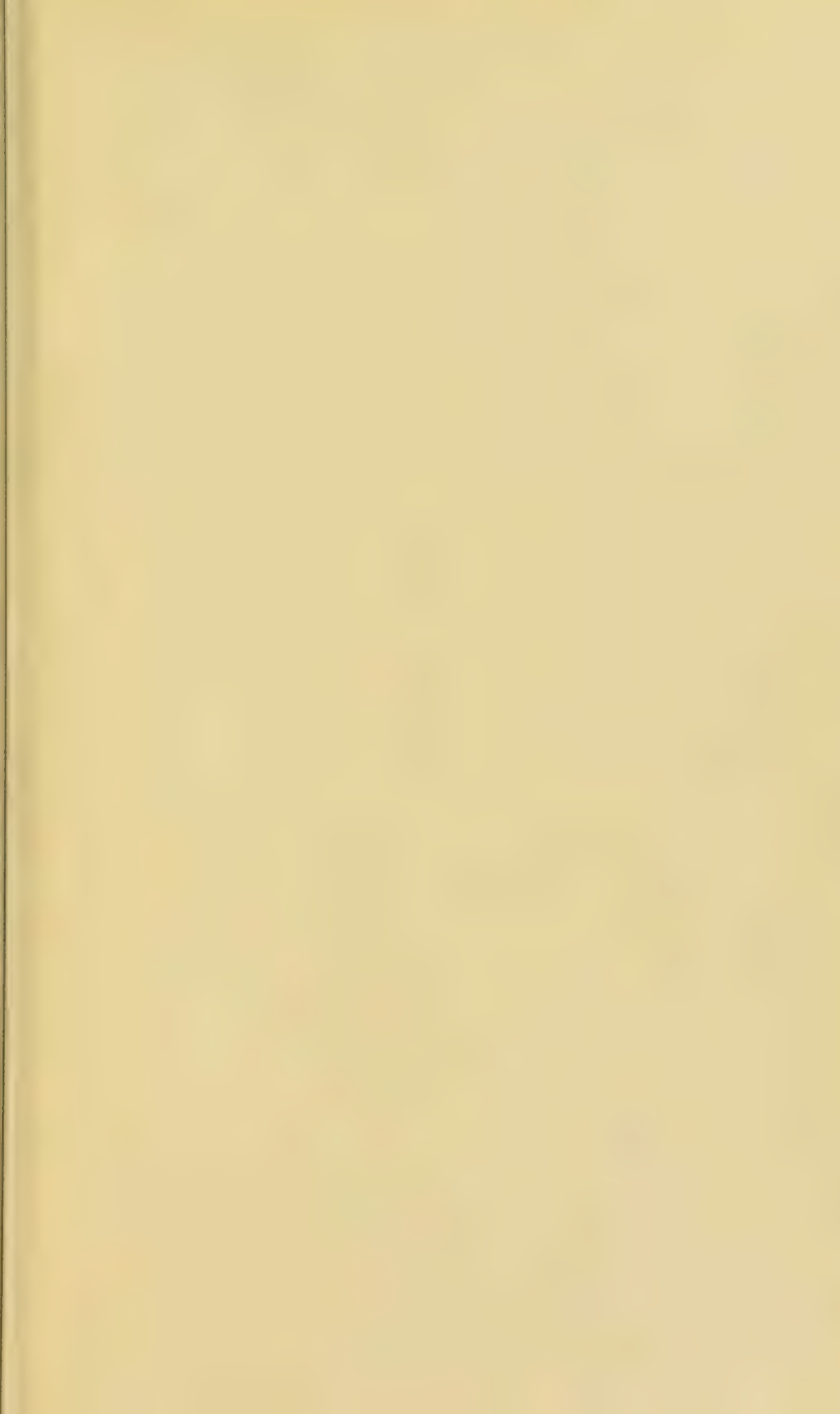
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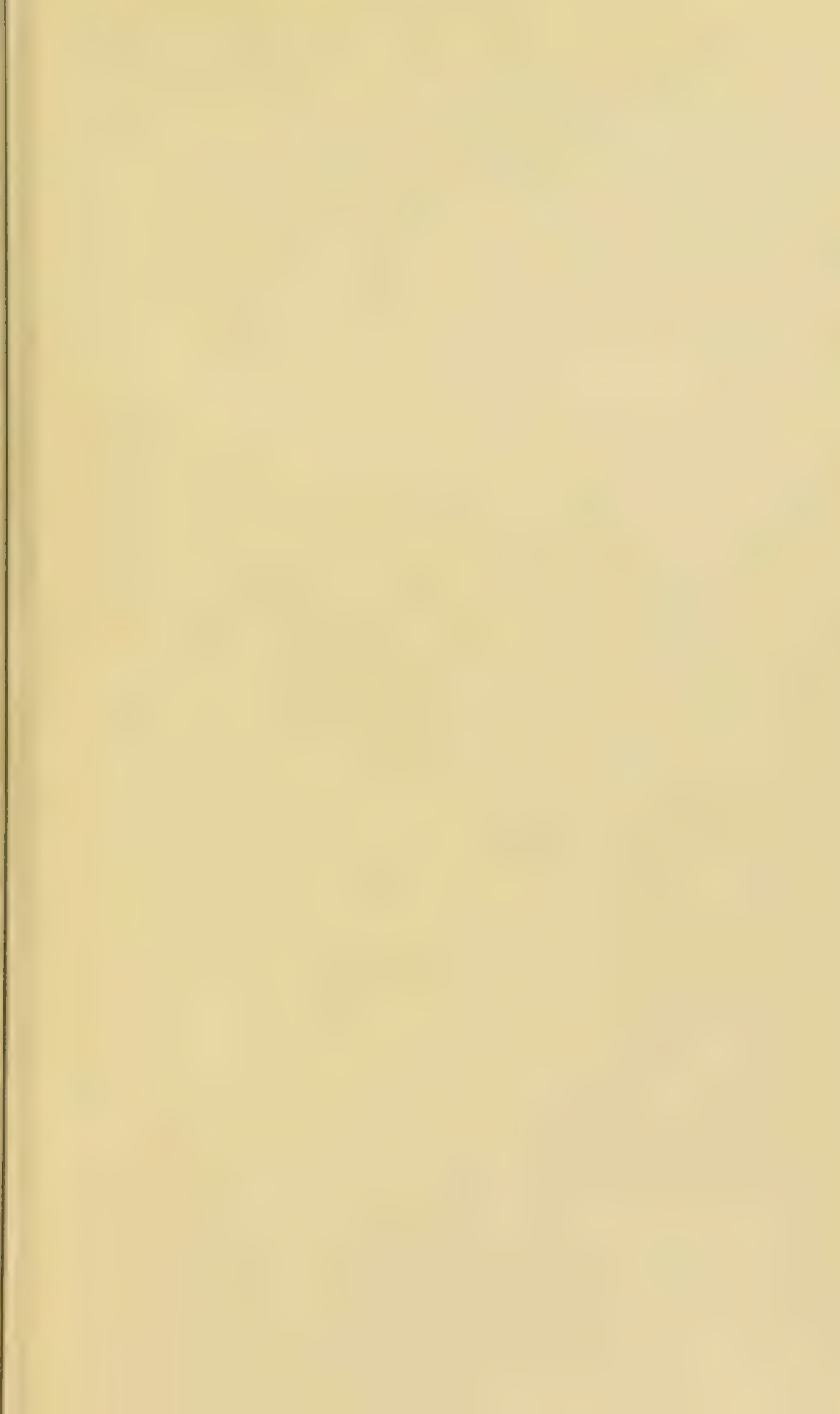
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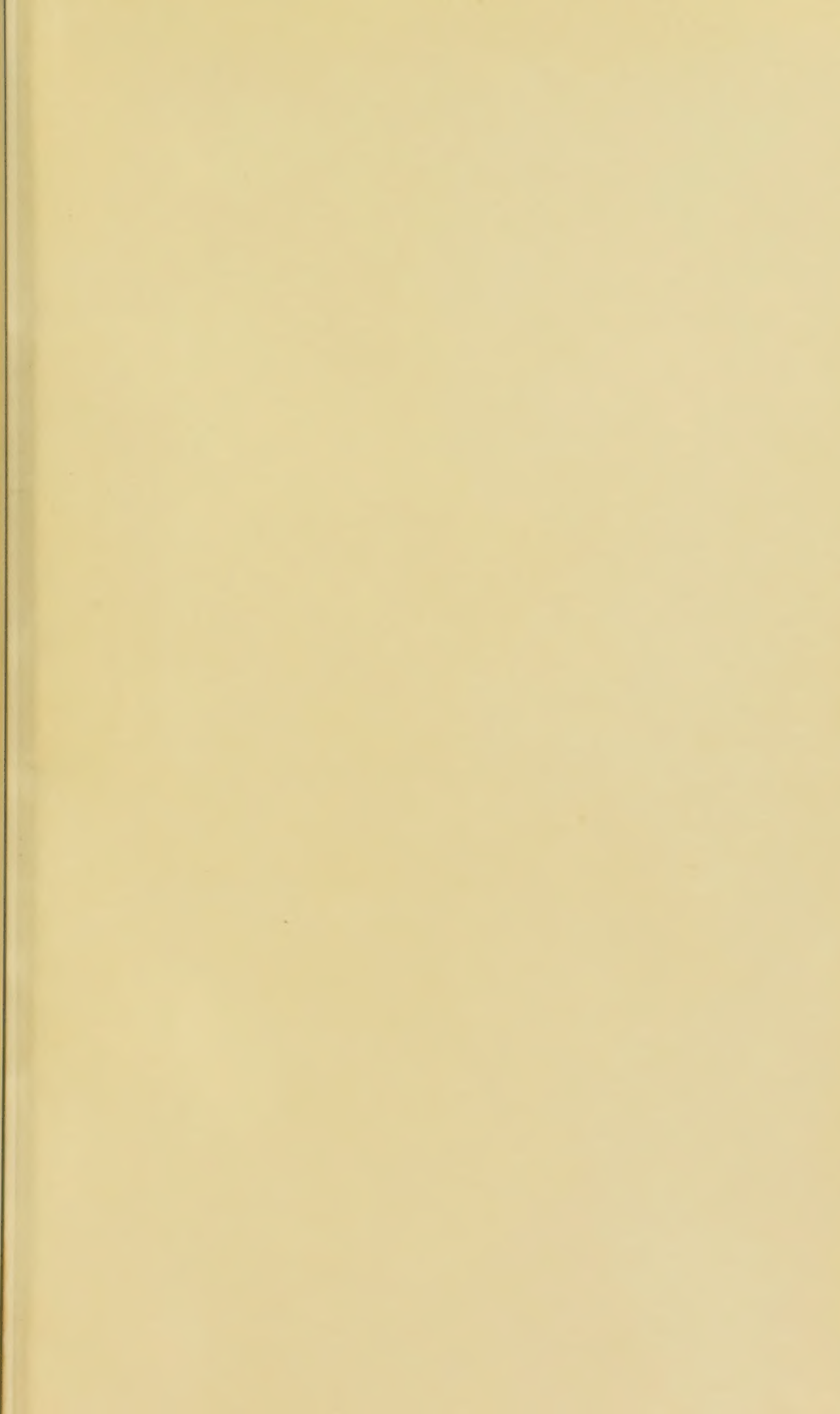












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